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ABSTRACT

Six of the first vocational education (VE) programs to adopt new voluntary national skill standards were studied to identify the opportunities and challenges faced by VE programs adopting the new standards. The VE programs studied were located in high schools in seven cities: Chalmette and Walker, Louisiana; Chicago, Illinois; L'Anse Creuse, Michigan; Milwaukee, Oregon; Royal Oak, Michigan; and Trenton, New Jersey. Special attention was paid to the following: each school's progress in implementing national skill standards, local contextual factors impeding or facilitating efforts to implement standards, successful strategies for responding to potential barriers and opportunities, and ways policymakers can facilitate local implementation of skill standards. The key findings are based on analysis of the interactions and roles of school staff, employers, and students. Key findings included the following: (1) curriculum and assessment change required external support and incentives; (2) employers found external assessments of students' mastery of competencies more credible than checklists developed by skill standards groups; (3) concrete program changes and trade association leadership can engage employers; (4) programs need to enhance strategies for recruiting, engaging, and placing students; (5) implementation of skill standards will likely require new public and private resources; and (6) skill standards can enhance VE programs whether or not a market for certificates emerges. (The report contains 26 references. Profiles of the case study sites are appended.) (MN)

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Roles of Schools, Employers, and Students in Implementing National Skill Standards

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MAKING JOINT COMMITMENTS

Roles of Schools, Employers, and Students in Implementing National Skill Standards

Final Report

1999

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No one but the authors, of course, bears any responsibility for the numerous judgments and conclusions reflected in the report. In seeking to summarize complex skill standards initiatives, we regret if we have not always succeeded in fully and fairly describing the numerous contributions to these important efforts.

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EXECUTIVE SUMMARY

New industry-led partnerships are seeking to enhance the productivity and mobility of the workforce by defining voluntary national skill standards. These standards identify both the skills needed in particular fields and ways for individuals to document these skills. Skill standards partnerships are also trying to create a market for portable skill certificates--credentials that most employers in an industry would recognize. The success of these skill standards initiatives will hinge, in part, on whether a substantial number of schools, employers, and students find value in the new standards, develop confidence in the new assessment and credentialing systems, and make the necessary adjustments in their curriculum, hiring practices, and learning efforts.

This report identifies lessons learned by some of the first vocational education programs that adopted new skill standards. It examines the opportunities and challenges these programs faced and how program staff dealt with them. This executive summary (1) briefly describes the purpose and origins of national skill standards, (2) outlines the scope and design of the study upon which this report is based, and (3) summarizes key findings.

NATIONAL SKILL STANDARDS: PURPOSE AND ORIGINS

National skill standards are designed to benefit three groups:

- ***Education and Training Institutions.*** Standards identify the skills required in particular fields and provide a focus for efforts to update curriculum and student assessment methods.

- ***Employers.*** Skill standards, in conjunction with new assessment and credentialing systems, can enhance employers' ability to assess the competencies of job applicants and the training needs of firms' current employees.

- ***Students and Workers.*** Standards clarify the skills people need to acquire to work in particular fields; skill certificates document those competencies, enhancing individuals' employment options and geographic mobility.

The federal government has sponsored two sets of national skill standards initiatives. First, in 1992, the U.S. Departments of Education (ED) and Labor (DOL) funded 22 "pilot projects" to develop national skill standards for a variety of specific occupations. The pilot projects compiled lists of the duties that entry-level workers should be able to perform, as well as the skills--academic, technical, and problem-solving--required to perform those duties. Some of the projects succeeded not only in defining skill standards, but also in developing certification procedures and creating an organization that continues to promote the standards. However, the scope of these projects was

limited. Many entry-level occupations were not covered by any project. Moreover, most projects had limited resources and thus could not support local implementation efforts.

Second, in 1994, the National Skill Standards Act (NSSA) established the National Skill Standards Board (NSSB) and called for the creation of voluntary national skill standards for a broad range of industries and occupations. The NSSB was charged with (1) facilitating the creation of industry-led voluntary partnerships that could formulate national skill standards and certification systems for clusters of related jobs, (2) endorsing the core standards defined by partnerships for broad occupational clusters, and (3) developing criteria by which partnerships could themselves endorse more specific skill standards for narrower occupations. The NSSB has helped organize several voluntary partnerships, but these partnerships have not yet defined skill standards.

While national skill standards can shape a broad range of education and training programs, some educators have embraced the new standards initiatives as a way to improve high school vocational programs. By organizing vocational curricula around national standards, schools may be able to ensure that vocational programs focus on developing skills that are widely applicable within an industry. New credentialing procedures offer a means of enhancing graduates' employment and education options.

A small number of high school vocational programs have begun to implement new national skill standards, providing potentially valuable lessons for practitioners and policymakers. This study focuses on six sites where vocational programs are adopting new standards. Although the six sites cannot depict the full range of efforts under way to advance skill standards, the analysis of these sites can help identify some implementation issues that may be important in the future.

STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

The study upon which this report is based was designed to identify key challenges and opportunities for high schools implementing national skill standards. Focusing on the experience of six specific sites that recently adopted national skill standards, the study addresses four broad questions:

1. How much progress has been made in implementing national skill standards in the case study programs?
2. How do local contextual factors impede or facilitate efforts to implement standards?
3. What are successful strategies for responding to potential barriers and opportunities?
4. How can policymakers facilitate local implementation of skill standards?

The study focuses on high schools that have adopted new national standards for three specific career areas: retail, metalworking, and printing. These standards were developed by the National

Retail Federation (NRF), the National Institute for Metalworking Skills (NIMS), and the Printing Industries of America (PIA). The retail and metalworking standards were formulated by ED/DOL pilot projects during the mid-1990s; the printing standards were developed in Georgia during the late 1980s and disseminated nationally in 1991.

High schools are the principal institutions responsible for implementing skill standards in each of the case study sites. All of the schools secured some resources or support from other organizations in their regions, including state education departments, employers, regional industry associations, and postsecondary institutions. The schools received little support, however, from national skill standards groups or federal agencies.

The study's main findings are based on an analysis of the interactions and roles of three key stakeholder groups: school staff, employers, and students. The authors conducted a two-day visit to each of the six sites, interviewing school staff, employers, industry association staff, and high school students participating in the programs adopting skill standards. This report examines how each group's response to the standards is shaped by the responses of the other groups. We focus on three issues:

- In what ways have school staff modified curricula and student assessment procedures in accordance with the national skill standards?
- How have programs engaged local employers, and what kinds of support are employers providing to local skill standard initiatives?
- To what extent have programs recruited students interested in relevant careers, motivated them to meet the standards, and helped them use their skills and credentials?

KEY FINDINGS

Next, we summarize key findings pertaining to each of the three issues identified above and provide observations about the challenges facing skill standards initiatives in the future.

Curriculum and Assessment Change Required External Support and Incentives

National skill standards initiatives seek to change both what people learn and how they document their skills. As the National Skill Standards Act indicates, skill standards can help educators identify the "skills necessary for employment" and modify curriculum and assessment methods accordingly. To facilitate local implementation, state and national skill standards organizations have developed (1) program guidelines clarifying how schools can apply standards, and (2) new student assessment tools (such as checklists of competencies and written or performance-based tests).

The experience of case study programs highlights the challenges faced by schools in modifying curriculum and assessment. Most case study programs made modest changes to instructors' curriculum and student assessment methods. When instructors made more substantial changes, these usually affected only a small subset of their students--typically those most interested in earning a skill certificate. Since most students continued to work on the same kinds of assignments as before, the focus of the feedback they received from instructors did not change appreciably. However, two programs made more dramatic changes in both their curriculum and assessment methods, placing much more emphasis on new technical and academic skills. Several factors appeared to affect the amount and kinds of program changes:

- ***New resources are needed to redesign curriculum.*** Limited resources often hinder instructors' ability to modify curricula. Instructors in the case study sites usually had to translate standards into a curriculum but rarely received extra planning time to do so. Scarcity of resources for purchasing new equipment has prevented some programs from offering students good opportunities to master key competencies identified in the standards. However, several programs secured valuable external resources, typically provided by local employers or regional industry organizations involved in the skill standards initiative. These new resources played a crucial role, allowing programs to develop instructional materials or purchase new equipment.

- ***Incentives are useful to engage students in new assignments.*** In several programs, instructors had difficulty convincing students to practice difficult new tasks related to standards or new assessments. Most programs attracted students with diverse interests, many of whom were not particularly motivated to prepare for the careers for which standards were designed. To accommodate this diversity, some instructors revised the curriculum for only the few students interested in earning certificates. Other instructors applied the standards in a flexible manner, emphasizing different standards and learning goals with each student in the class. However, where programs introduced incentives designed to heighten students' motivation, instructors were able to make more substantial changes in students' assignments. Industry partners sometimes offered internships or other rewards to those mastering specific competencies, making students more willing to practice challenging tasks related to the standards. One program also successfully used opportunities to earn college credit during high school as an incentive to motivate students to complete difficult assignments and certification tests.

- ***While checklists are flexible and comprehensive, external assessments appear to be more credible to employers and more effective in influencing curriculum.*** Several instructors used checklists developed by skill standards groups to track whether students had acquired the competencies required to earn a skill certificate. The checklists are comprehensive: they cover a large number of skills and include appraisals of students' performance in the classroom and the workplace. However, the checklists led to only small changes in the tasks students performed and the kind of feedback they received from school and employer staff. Moreover, employers not closely involved in the programs sometimes questioned the value of a skill certificate issued on the basis of checklists, noting the difficulty of confirming instructors' assessment methods. In

contrast, it seems that tests administered by skill standards organizations stimulated somewhat greater changes in programs' curriculum and offered more credible documentation of student skills. These external assessments are probably more influential in fields such as precision machining where employers and community colleges place a high value on discrete technical skills that can be assessed in a written or performance-based test.

Concrete Program Changes and Trade Association Leadership Can Engage Employers

The success of the new skill standards hinges not only on industry involvement at the national level, but also on employers' roles in supporting local efforts to implement the standards. Local employers can be engaged either directly by schools or through regional industry organizations, many of which are affiliated with the national groups that are developing skill standards. Employers and regional industry organizations can support local implementation efforts in a variety of ways: they can provide funding for new equipment, work-based activities for students, help in recruiting other employers, and feedback on new curriculum.

Before the sites adopted the skill standards, few employers were actively involved in the vocational programs. To secure industry support, programs had to reach out to employers in a new way. The study provided three main findings on the involvement of employers and industry organizations in local skill standards initiatives:

- ***Without a targeted outreach effort, few local employers are likely to learn about skill standards.*** Schools have difficulty familiarizing employers with skill standards. Co-op supervisors--the school staff who have the most contact with employers--do not have time to learn about and promote the standards. School staff often assume that national industry organizations should take the lead in educating local employers about standards, even when these organizations do not have the resources to perform this function. Two programs engaged local employers in skill standards initiatives by identifying and contacting employers in the segment of the industry most likely to find the standards appealing. These outreach efforts were particularly successful because they were carried out by individual staff members familiar with both the standards and the industry.

- ***When individual employers perceive that they have a stake in the success of local skill standards initiatives, they often provide useful support.*** Simply informing employers of skill standards does not ensure that they will support efforts to implement them. Schools offering tangible evidence of program improvements have been more successful in securing financial support and high-quality student internships. Sites have earned support by demonstrating that students are productive employees, giving employer partners more of a voice in the selection of new equipment, and offering employer sponsors the first opportunity to interview program graduates.

- ***Regional industry associations can substantially increase both the public and the private resources available to skill standards initiatives.*** By representing the collective interests of many firms and spreading costs widely, regional industry associations can play an important role in skill standards initiatives. In at least two sites, regional industry associations made contributions that went well beyond those of individual employers. They helped to secure state funding, purchased instructional materials, and developed workplace learning experiences for a large number of students.

Programs Need to Enhance Strategies for Recruiting, Engaging, and Placing Students

Skill standards will not have wide acceptance among students and employers unless graduates meeting the standards are successful in relevant careers. Thus, school staff need to attract students with relevant career interests, motivate them to acquire key competencies, and help them enter attractive jobs or postsecondary programs related to the standards. Our analysis generated the following findings about local efforts to engage students:

- ***Instructors perceive a need to change student recruitment procedures, but district rules and equity concerns often limit such changes.*** Most case study programs continue to rely on traditional vocational enrollment procedures, which attract many students with little interest in the specific careers for which the skill standards were designed. District rules and the need to maintain large average class sizes sometimes prevent program staff from targeting students who have relevant interests and skills. In a metalworking program that overcame these hurdles, the instructor was able to expand the number of applicants and screen out those with unfocused interests, poor attendance, or very low math grades. These changes appear to have bolstered the program's reputation among employers and students. However, some school staff are concerned that the screening procedures limit the options available to students with low levels of academic achievement. Where skill standards initiatives can develop new application procedures, they must balance equity concerns against the need to recruit more students likely to be successful in relevant careers.

- ***Additional incentives can motivate students to earn skill certificates; however, some instructors are reluctant to place too much emphasis on the new credentials, given their uncertain value.*** Regardless of how carefully programs screen new students, staff need to find ways to motivate those participating in the program. Skill certificates do not yet have much value in the labor market, so they are not a sufficient reward to induce most students to meet the skill standards. Some programs motivated students by offering internships or college credits to those who made progress in earning a skill certificate. However, where program staff were uncertain about the future value of the skill standards and certificates, they sometimes chose to reward students for a wider variety of accomplishments. For example, the Louisiana retail program subsidizes student trips to vocational competitions based on students' successful completion of retail-related projects; nearly all of these projects used problem-solving and basic skills that employers value, but only some of them emphasized skills identified in the standards. As long as certificates have little market value and programs attract many

students interested in unrelated careers, some instructors are likely to be reluctant to tie student rewards closely to skill standards.

- ***Programs need to enhance their capacity to track graduates and help them enter relevant jobs and postsecondary programs.*** Because schools can provide only incomplete data on student outcomes, it is difficult to estimate the fraction of graduates who are using the skills emphasized in the standards. However, the available information on students' postsecondary outcomes suggests that most graduates are not entering the fields for which the skill standards were designed. Fewer than half of participating students graduating from the case study schools appear to enter jobs or postsecondary programs that are directly related to the skill standards. Employers and community colleges are unlikely to accept the standards until larger numbers of graduates earn certificates and apply for relevant jobs and programs.

Implementation of Skill Standards Is Likely to Require New Public and Private Resources

The long-term potential of national skill standards as a tool for upgrading high school programs is uncertain. Except for a few well-established standards (such as those for automotive repair), national skill standards have not yet been implemented in a substantial number of high schools. Adding to the uncertainty is the advent of a new framework that will expand the occupational scope of many skill standards. The NSSB is encouraging the new voluntary partnerships to develop more general standards that will apply to a broader set of related occupations and industries. This proposal is consistent with some educators' interest in broadening the scope of vocational programs, but the new standards may require even greater change in the structure and content of vocational curricula. In spite of these sources of uncertainty, two predictions can be made from the experience of the case study sites:

- ***Unless public and private institutions make substantial new investments to enhance local capacity, national skill standards initiatives are unlikely to create a market for portable skill certificates.*** To increase students' and employers' interest in skill certificates, the public and private sectors must invest in an infrastructure that supports local implementation. Standards need to be translated into curriculum models and instructional tools. Educators and trade associations must aggressively promote skill standards and certificates to local employers. Vocational and other career-focused programs will need to recruit students interested in relevant careers and motivate them to work hard to meet the standards. Even if all these investments are made, a large fraction of employers in an industry may still not recognize the new certificates. A more realistic near-term goal is to try to develop a market for certificates in a few regions containing a substantial number of relevant jobs.

- ***Whether or not a market for certificates emerges, skill standards initiatives could enhance vocational programs.*** Skill standards initiatives may lead to substantial improvements in vocational programs--improvements that do not depend on the demand for skill certificates. For example, the national standards could help programs improve

curricula, forge effective articulation agreements with community colleges, and secure more support from local employers. Achievement of these objectives does not necessarily entail as many institutional changes as those required to create a market for skill certificates. However, a serious effort to realize any of these goals would require some new resources. Public agencies and industry organizations will need to provide some support to local implementation efforts if they want to ensure that skill standards yield dividends for schools, employers, and students.

I. INTRODUCTION

Educational and training institutions have long sought to provide opportunities for individuals to acquire occupationally specific skills. Until recently, most institutions providing skills training--including high school vocational programs, postsecondary institutions, and training agencies--have been expected to individually seek input from local employers to identify the skills that should be emphasized in their programs. While many states have developed curriculum frameworks for vocational programs, only a few states have developed clear and detailed standards indicating which competencies students should master before completing a program. The highly decentralized approach to defining skill standards has been costly since it has forced many programs to duplicate each others work. The lack of consistency in curricula and assessment procedures has also impeded efforts to provide students with "portable credentials"--evidence of skills that are acceptable to employers throughout an industry--limiting graduates' employment options and increasing employer recruitment and screening costs.

Recognizing the limitations of a decentralized approach to defining skill standards, policymakers have recently sought to define national standards for a variety of entry-level occupations. This federal effort has involved two sets of initiatives. First, in 1992, the Departments of Education and Labor funded 22 skill standards projects that defined national standards for a variety of occupations, most of which are narrowly defined. Second, the National Skill Standards Board (NSSB), established in 1994, is organizing new voluntary partnerships that will define standards for broader occupational clusters. The partnerships chartered by the NSSB are in the early phases of development and have not yet proposed specific skill standards.

The purpose of this study is to examine the opportunities and challenges confronted by high school vocational education programs that adopt national skill standards. Employing a case study approach, the study identifies the issues facing schools, employers, and students; programs' strategies for overcoming key challenges, and some emerging implementation issues that may affect future skill standards initiatives.

The rest of this introduction briefly describes (1) the origins and purpose of national skill standards, (2) the implementation status of the newest generation of national skill standards, (3) the purpose and design of this study, and (4) the organization of this report.

A. PURPOSE AND ORIGINS OF NATIONAL SKILL STANDARDS

Many educators have long argued that the poor labor market outcomes of students who do not attend college reflect the limited opportunities available in high school to acquire and document marketable skills. While most vocational programs are designed to prepare students for entry into the workforce, critics of these programs contend that they have failed to keep pace with shifts in technology, to focus on higher-level and broadly applicable skills, to motivate students to apply themselves in school, and to document the skills that students do acquire (Bishop 1996; and Grasso and Shea 1979).

Skill standards initiatives can potentially address each of these problems. Skill standards identify the specific competencies needed to enter a particular field and provide the basis for credentials that document these competencies. While states and school districts have a long history of developing skill standards for vocational programs, there was no national system for defining such standards until relatively recently. In this section, we briefly describe (1) the purpose, and then (2) the origins of national skill standards.

1. Purpose of National Skill Standards

Skill standards can benefit several different groups of stakeholders. The National Skill Standards Act (NSSA) of 1994 indicates that voluntary national skill standards should be designed to generate the following benefits:[1]

- ***Benefits to Employers.*** Provide more useful information on the competencies of job applicants and the training needs of employers' current workforce
- ***Benefits to Education and Training Institutions.*** Identify the skills and skill levels that people need to succeed in a career, providing a focus for efforts to update curricula and student assessment procedures
- ***Benefits to Students and Workers.*** Clarify the competencies needed for a particular job or advancement in a career and certify skills through a portable credential recognized throughout an industry, thereby enhancing a person's employment options and geographic mobility[2]

High school students are only one of several groups expected to benefit from national skill standards. The NSSA indicates that skill standards can address the needs of high school and postsecondary students, incumbent workers, and people re-entering the workforce. Standards can help each of these groups by identifying the skills they need to succeed in a particular field, improving the quality of the training they receive (in school or on the job), and enhancing their credentials and mobility. While a broad range of people can potentially benefit from skill standards, this study is concerned exclusively with implementation efforts that focus on high school students.

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[1]The NSSA was Title V of the Goals 2000: Educate America Act of 1994.

[2]In addition to (or perhaps as a result of) these benefits, the Act suggests that skill standards will increase the average skill level of employees, the productivity of the workforce, and the competitiveness of American industry. Some researchers suggest that by enhancing the skills of the labor force, skill standards may make it easier for employers to adopt new skill-intensive technologies and management systems (Bailey and Merrit 1995).

Vocational programs are the most common career-focused programs of study in high school and the most obvious target for skill standards. National skill standards can potentially be applied in two kinds of career-related high school programs: (1) traditional vocational programs focusing on fairly narrow occupations that usually do not require a four year college degree, and (2) restructured vocational programs or nonvocational programs designed to prepare participating students for a broad cluster of related careers including some requiring four years of college. While nearly every school district offers traditional vocational programs, only some offer programs organized around broad career clusters. Moreover, since most of the national standards developed to date are fairly narrow in the range of occupations to which they apply, most of the programs adopting these standards (including all the case study programs examined in this report) have been traditional vocational programs.[3]

Skill standards can address some of the perceived deficiencies of high school vocational programs. By organizing curricula and assessment around national standards, educators can make sure that programs focus on skills that many employers value. Ideally, skill standards identify not only the technical skills but also the general academic and problem-solving competencies needed in a particular field, providing the basis for upgrading the academic content of vocational programs. By offering a standardized credential--in the form of a skill certificate--to students who have demonstrated key competencies, programs can make it easier for employers to establish the skills of students completing vocational programs and enhance students' employment opportunities. If programs succeed in making these credentials credible to employers and hence valued in the labor

[3]As discussed in the next section, the new national skill standards that voluntary partnerships are currently developing apply to a considerably broader range of occupations and industries.

market, then the skill standards can enhance students' motivation to participate and work hard in vocational programs.

2. Origins of National Skill Standards

Although some industry and professional groups have developed national skill standards, until recently most such standards focused on positions that are not accessible to high school graduates without some postsecondary education or training (Wills 1993). Hence, few national skill standards have been applicable to secondary vocational programs. Educators' interest in establishing such standards reflects in part the difficulties that individual states and districts have confronted in establishing their own skill standards for vocational programs.

While some states have a long history of defining skill standards for secondary vocational programs, the level of state interest and involvement in this activity has grown during the last two decades. A handful of states--including Wisconsin--defined skill standards for vocational programs early in the century.[4] States' roles in developing skill standards substantially expanded during the 1980s, as a result of two factors. First, in response to a widespread perception that many vocational programs focused on skills no longer valued in the labor market, the Perkins Act of 1984 required states to form technical committees to define standards for at least some vocational career areas. Second, the economic status of young workers who do not possess a college degree declined during the 1980s: the gap between the wages received by young adults with high school degrees and those of college graduates doubled between 1978 and 1990, from 38 percent to 79 percent (Phillips 1996).

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[4]For example, Wisconsin established some occupational skill standards in 1906 (Wills 1993).

Educators' recognition of this trend reinforced support for enhancing career-focused programs designed for students who do not expect to enroll in a four-year college.[5]

As larger numbers of states sought to develop their own occupational standards, some policymakers began to perceive shortcomings in this decentralized approach. First, states often duplicated each other's work, incurring substantial costs in the process. The cost of defining or updating standards for a single vocational career area could exceed $500,000 even when the number of students participating in that state's vocational program was small (Wills 1993). While some states participated in multistate consortia to share their skill standards, there was still a great deal of duplication of effort. Second, states had difficulty developing reliable assessment tools that were consistent with their curriculum frameworks. Some states drew on assessment tests developed at the national level by private not-for-profit organizations (such as the National Occupational Competency Testing Institute) even though these instruments were not entirely consistent with their own standards. Third, the lack of consistency in state standards undermined the feasibility of creating a portable credential recognized across state lines. Although some states and districts issued certificates to students, the fragmentation in states' curricula and assessment systems made it difficult to create a national or even a regional market for these credentials.

Interest in national skill standards has also been fed by the success of the national automotive repair standards, viewed as a model by many other industry groups. The standards and technician certification process was developed initially in 1972 by the National Institute for Automotive Service Excellence (ASE). However, during the 1980s, in response to heightened concerns about the inconsistent quality of automotive repair technicians, ASE and its partner, the National Automotive

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[5]Educators interest in addressing the problems of students who do not enroll in college was reflected in the publication of "The Forgotten Half"--the influential 1988 report produced by the Grant Foundation (Grant Foundation Commission on Work, Family and Citizenship 1988).

Technicians Education Foundation (NATEF), elaborated the certification standards and created a training program for accreditation. General Motors aggressively promoted the standards and ultimately won the support of other auto manufactures, dealerships, and independent garage owners. Employers' acceptance of the standards led large numbers of secondary and postsecondary automotive repair programs to apply and secure ASE accreditation. The ASE/NATEF standards are credited with improving the quality of automotive technician programs and the skills of students completing these programs (Center on Education and Training for Employment 1995).

To bring more consistency to the range of skills-training opportunities available to both students and adult workers, policymakers have begun to lay the foundation for a system of voluntary national skill standards. In 1992, the U.S. Departments of Education and Labor funded 22 "pilot projects" to develop national skill standards for a variety of specific occupations. The pilot projects--most of which were implemented by national trade associations or other industry-based organizations--were charged with developing and disseminating skill standards that schools, training institutions, and employers could use to guide their training and skill assessment efforts. Nearly all the projects developed extensive lists of the skills--including academic, technical, and problem-solving skills--required in specific occupations and industries.

Most of the pilot projects succeeded not only in defining skill standards, but also in developing an organization that is continuing to promote the national standards to educators and employers. Hence, most of the projects--regardless of whether new or existing organizations implemented them--no longer view themselves as demonstrations but rather as ongoing ventures charged with promoting the standards. Several of the pilots regard employers as their primary audience and are trying to work through local trade associations to promote the use of standards in designing employers' internal training programs and performance assessment procedures. Other pilots are

focusing more on promoting standards in secondary and postsecondary vocational programs. For example, the National Institute for Metalworking Skills (NIMS) is accrediting individual secondary and postsecondary programs and promoting the standards with state departments of education and workforce development agencies.

Two federal initiatives enacted in 1994--the National Skill Standards Act (NSSA) and School-to-Work Opportunities Act (STWOA)--provided additional support for skill standards while broadening the potential scope of these standards. The NSSA established the National Skill Standards Board (NSSB) and called for the creation of voluntary national skill standards for a broad range of industries and occupations.[6] The NSSB was charged with (1) facilitating the creation of industry-led voluntary partnerships that could formulate skill standards and certification systems for a set of entry level occupations in an industry cluster, (2) endorsing the broadest set of general "core" standards that will apply to all of these occupations, and (3) developing the criteria by which the NSSB-sponsored partnerships could themselves endorse more specific skill standards for each specific occupation. Since the voluntary partnerships are expected to initially focus on developing core standards, it may take some time before it is clear how these standards relate to the more narrow standards developed by the original ED/DOL pilot initiatives.

The STWOA contributed to the expansion in the policy agenda by supporting the development of broad high school programs of study organized around skill standards that would ideally engage both collegebound and non college bound students. While seeking to create career-focused learning opportunities potentially applicable to a diverse range of students, STWOA also indicated that these programs should each culminate in the award of a portable, industry-recognized skill certificate and integrate vocational and academic curricula, school-based and work-based learning, and, secondary

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[6]Title V of Goals 2000 is also known as the "National Skill Standards Act of 1994."

and postsecondary programs. STWOA required local STW initiatives to develop skill certificates based on standards "at least as challenging" as those endorsed by the NSSB or, if relevant standards had not yet been endorsed in a particular career area, on standards approved by the state. Policymakers hoped that both statewide and local School-to-Work (STW) initiatives would play an important role in developing the local capacity to implement national skill standards.

B. IMPLEMENTATION STATUS OF NEW SKILL STANDARDS

To enhance the skills and credentials of entry-level workers, national skill standards initiatives need to foster changes in schools' curricula and assessment methods. This can happen only after the national skill standards have been defined, state and local educators have learned about and decided to adopt the standards, and schools have secured the resources needed to make the requisite changes. This process has just begun, both because some of the new national initiatives have not yet defined standards and because few states and local districts have focused substantial resources on implementation.

None of the new voluntary industry-based partnerships chartered by the NSSB have finished their work. Before the NSSB could create these partnerships, it had to organize "Convening Groups" in each industry sector--groups responsible for identifying partners and managing the development of standards. To date, eight convening groups have been assembled, and the NSSB has formally recognized two as Voluntary Partnerships. However, these partnerships have not yet proposed any standards to the NSSB. Nor has the NSSB endorsed any pre-existing national standards (such as those developed by the ED/DOL pilots).[7]

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[7]The NSSB plans to delegate the role of endorsing standards for relatively narrow occupations (like those developed by most of the ED/DOL pilots) to the new voluntary partnerships. It may take some time for the voluntary partnerships to review and endorse all of the pre-existing standards that (continued...)

In addition, few states or local districts have focused much of their attention or resources on national skill standards. Even though STWOA identified as a priority the development of broad career majors organized around skill standards, few local STW initiatives have focused on this objective. Many STW initiatives have focused on expanding career development and guidance--activities that are clearly relevant to all students and easier to implement quickly (Hershey et al. 1998). When STW initiatives have developed or modified programs to reflect skill standards, these programs are typically fairly small and rarely lead to the award of a skill certificate. Consequently, there has been little recent growth in the use of skill certificates: only about 2.6 percent of the seniors in schools covered by STW partnerships received skill certificates in 1997, about the same as in 1996.[8] Moreover many skill standards used by these programs have been developed at the state or local level. Some of these standards are inconsistent with national standards for the same occupations.[9]

Nonetheless, some local progress has been made in implementing the new national skill standards, as a result of the efforts of some of the sponsors of the DOL/ED pilots, other industry associations, and state and local educators. For example, NIMS, a sponsor of one of the pilots, approached the Council of Great Lakes Governors to promote the NIMS metalworking standards

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[7](...continued)
pertain to their industrial cluster.

[8]In addition, many of the standards that schools implemented continue to be defined at the state or even the district level. Thus, some of the 2.6 percent of seniors who received a skill certificate obtained a credential based on state or local rather than national standards.

[9]Several states--including Indiana, Illinois, Ohio, Texas, Vermont, and Washington --have made substantial investments in the development of skill standards during the last ten or more years. While some of these standards initiatives grew out of federal requirements to organize state level committees to create general guidelines for vocational programs, some have gone considerably further, developing both curriculum frameworks and student assessment procedures.

within the Great Lakes states. In response to this outreach effort, Michigan launched NIMS demonstrations in several machining programs across the state. Some state-level industry associations--such as the Illinois Retail Merchants Association and the Oregon Metals Industry Council--have secured public funding to work with schools implementing national standards for their industries. Some districts (such as the Oakland County Intermediate School District) and schools (such as the Sabin Career Center in Milwaukee, Oregon) have embraced national standards as a way to upgrade their vocational programs. Finally, a few states (such as New Jersey) have begun to require all vocational programs to adopt some kind of national skill standards.

Most of the local efforts to adopt national standards are new, so little information is available about the kinds of challenges these initiatives face. Most efforts to implement the standards the DOL/ED pilot sponsors developed were started in the past few years, and their experience can provide a sense of the institutional constraints and resource needs of local skill standards initiatives. These lessons can prove useful to both policymakers and practitioners involved in skill standards implementation.

C. PURPOSE AND DESIGN OF STUDY

This report summarizes findings from a study designed to identify opportunities and challenges faced in implementing national skill standards. Using a case study approach that focuses on the experiences of selected high school vocational programs adopting skill standards, the study focused on four broad issues:

1. ***How much progress has been made in implementing national skill standards in the case study sites?*** To what extent have national standards contributed to important changes in the design of vocational programs? Have the standards projects helped schools forge useful relationships with employers or postsecondary institutions? Are many students earning skill certificates or making use of these credentials in the labor market?

2. ***How do local contextual factors impede or facilitate efforts to adopt standards?*** Has implementation progress been substantially affected by sites' resource constraints and preexisting institutional relationships?

3. ***What are successful strategies for responding to potential barriers and opportunities?*** How have schools sought to engage teachers, local employers, postsecondary institutions, parents, and students? Have sites modified their program design to accommodate the perceived needs of stakeholders?

4. ***How could policymakers facilitate local implementation of skill standards?*** What kinds of technical assistance, professional development, and instructional materials did the case study sites need? Which policies might increase stakeholders' contributions to and respect for skill standards?

The study focuses on sites adopting relatively new national skill standards in three specific career areas: retail, printing, and metalworking. The standards for these career areas are less than eight years old, which reflects our interest in the challenges associated with implementing new ones. The retail and metalworking standards were formulated during the mid 1990s by two organizations that received ED/DOL pilot grants: NIMS and the National Retail Federation. The printing standards were developed in Georgia during the late 1980s and disseminated nationally in 1991 by PrintED, an affiliate of the Printing Industries of America (PIA). Each of the three sets of skill standards is designed primarily for an entry-level position that is accessible to those with a high school degree: skilled machinist, press operator, and retail associate.

The six case study sites have adopted one or more of these three national skill standards (see Table I.1). We selected sites that adopted the standards recently (from one to five years before the site visits), which allowed key stakeholders to recall their roles in the change process. While the principal institutions responsible for implementing the skill standards are high schools (either vocational or comprehensive schools), each site secured some resources or support from other institutions, including state education departments, local industry associations, and postsecondary institutions. Four of the six sites consist of a single vocational school, while the other two (the

TABLE I.1

CASE STUDY SITES: LOCATION, PARTNERS, AND STANDARDS ADOPTED

Location	Schools Participating	Other Key Partners	Standards Adopted/ Year Adopted
Chicago, Illinois	13 high schools[a]	Illinois Retail Merchants Association	Retail/1996-1997
		Illinois State Board of Education	
L'Anse Creuse, Michigan	Pankow Technical Center	Macomb Community College	Metalworking/1996-1997
		Michigan Dept. of Education	
Louisiana	57 high schools[b]	Louisiana Retailers Association	Retail/1996-1997
		Louisiana Dept. of Education	
Mercer County, New Jersey	Mercer County Vocational-Technical Center	New Jersey Dept. of Education	Printing/1996-1997 Electronics/1996-1997
Milwaukee, Oregon	Sabin Skill Center	Pacific Printing and Imaging Association	Printing/1992-1993 Metalworking/1998-1999
		Oregon Metalworking Industry Council	
		Oregon Precision Metal Fabricators Association	
		Oregon Depts. of Education and Economic Development	
Oakland County, Michigan	Oakland County Technical Center	Michigan Dept. of Education	Printing/1997-1998 Metalworking/1998-1999

[a]The site visit to Chicago included visits to Dunbar Career Academy, Harper High School, and Jones Metropolitan High School.

[b]The site visit to Louisiana included visits to Andrew Jackson High School in Chalmette and Walker High School in Walker.

Louisiana and Illinois sites) consist of several schools that participate in a statewide effort to implement the national retail skill standards. All three sites adopting standards in more than one industry are in districts or states that have placed some priority on standards.[10]

Our analysis draws primarily on information collected during visits to the schools at the six sites. During these two-day visits, we collected data from four sources: (1) interviews with school and employer staff, (2) group interviews with students, (3) observation of selected classes and work-based activities, and (4) collection of data on students' acquisition of skill certificates and any available information on students' employment and postsecondary outcomes shortly after graduating from high school.

D. FRAMEWORK AND ORGANIZATION OF THE REPORT

For national skill standards to generate substantial benefits, large numbers of educational and training institutions, employers, and students must recognize and ultimately make investments that reflect their respect for the standards. Schools must invest in curricula, equipment, and new assessment procedures; students must be willing to work hard to earn skill certificates or other new credentials; employers must be willing to assess whether skill certificates are valuable signals of job applicants' competencies and provide feedback and other forms of support to schools implementing skill standards. Each group will be more inclined to make some investments in new standards if they perceive that other groups are making complementary investments (see Figure I.1). Hence, a key challenge is to persuade each stakeholder group to make some initial commitments so that others will perceive that their own investments are likely to be worthwhile.

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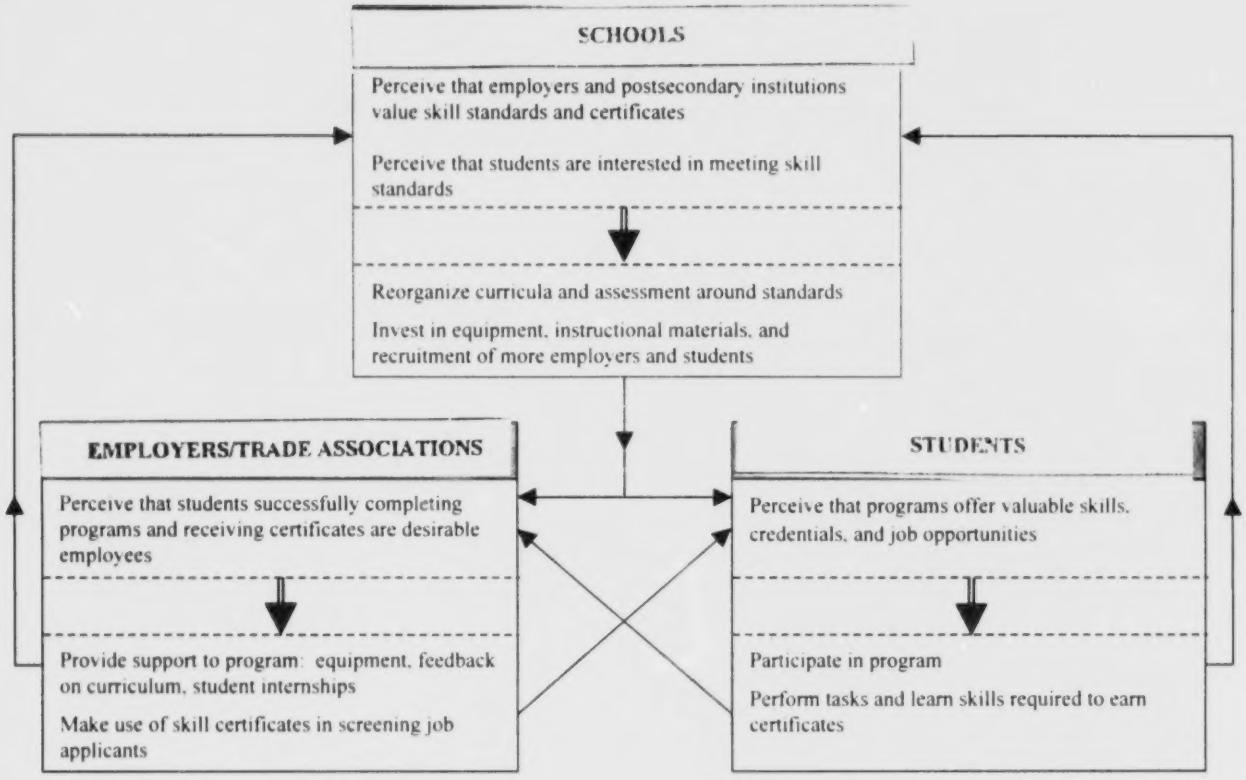
[10]The Mercer County Vocational-Technical Center adopted standards in both electronics and printing, and the site visit to this school involved discussions with staff involved in both programs. However, since no other site has an electronics program, this report does not examine the experience of Mercer County's electronics program.

FIGURE I.1

CONCEPTUAL FRAMEWORK: PERCEPTIONS OF AND COMMITMENTS TO NEW STANDARDS


SCHOOLS
Perceive that employers and postsecondary institutions value skill standards and certificates
Perceive that students are interested in meeting skill standards
Reorganize curricula and assessment around standards
Invest in equipment, instructional materials, and recruitment of more employers and students
EMPLOYERS/TRADE ASSOCIATIONS
Perceive that students successfully completing programs and receiving certificates are desirable employees
Provide support to program: equipment, feedback on curriculum, student internships
Make use of skill certificates in screening job applicants
STUDENTS
Perceive that programs offer valuable skills, credentials, and job opportunities
Participate in program
Perform tasks and learn skills required to earn certificates

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This report is organized around an analysis of how each of the three main stakeholder groups are responding to the challenges posed by new skill standards. We examine each stakeholder group separately--including their perceptions of and commitment to skill standards. In examining the perspective of each group, we highlight the constraints posed by the way the other two groups are responding to the new standards.[11] Each of the three following chapters examines the roles of one stakeholder group--school staff, local employers and trade associations, and students, respectively. The chapters focus on three main issues:

1. ***Changing Curriculum and Student Assessment (Chapter II).*** In what ways have school and program staff modified curricula and student assessment procedures in accordance with the national skill standards?

2. ***Involving Local Employers and Industry Groups (Chapter III).*** Do local employers support the new standards? What contributions have employers and local trade associations provided to the local skill standards initiatives?

3. ***Engaging Students (Chapter IV).*** To what extent have programs recruited students interested in the skill standards, motivated participants to meet the standards, and helped graduates make use of their skills and credentials?

In analyzing the influence of standards on vocational programs, we examine the specific kinds of commitments made to the new standards by each stakeholder group. We focus on the kinds of contributions that signal groups' interest in or commitment to the standards (see Table I.2). In examining stakeholders' contributions, we also identify local factors that appear to impede or facilitate the ability of groups to commit to the standards. The last chapter (Chapter V) summarizes some of the potential implications for policymakers and practitioners interested in accelerating the pace of local implementation.

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[11]Other stakeholders--unions, civil rights organizations, research institutions--also can perform important functions; however, to date, these stakeholders' contributions have been more visible at the national than at the local level. While Chapter III touches on the role of unions, organized labor did not play a large role in any of the sites.

TABLE I.2

ROLES OF THREE GROUPS IN SKILL STANDARDS IMPLEMENTATION

Program/School Staff
Changes in Curricula
Modifying learning activities to emphasize competencies covered in standards
Changing instructional strategies to facilitate acquisition or demonstration of competencies
Using standards to connect content of secondary program to postsecondary program
Changes in Assessment
Providing feedback to students on competencies identified in standards
Using checklists to keep track of competencies attained
Documenting students' skills for employers and postsecondary schools
Rewarding students who acquired skills
Local Employers and Trade Associations
Employer Roles
Becoming aware of skill standards
Providing financial support and feedback to programs
Providing work-based activities to students and jobs to graduates
Trade Association Roles
Designing and securing funding for programs that implement standards
Recruiting individual employers to support program
Providing technical assistance
Students
Program Entry
Choosing to participate in programs that adopt standards
Program Outcome
Meeting skill standards and earning skill certificates
Postprogram Outcome
Making use of skills and new credentials in jobs or postsecondary programs

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II. CHANGING CURRICULUM AND STUDENT ASSESSMENT

National skill standards initiatives seek to change both what students learn and how they document what they learn. As the National Skill Standards Act indicates, standards can help educators identify the "skills necessary for employment" and allow them to modify their curricula and assessment methods accordingly. New student assessment procedures can provide feedback to students on their progress and credible evidence of graduates' skills to employers or postsecondary institutions.

Reorganizing vocational curriculum and assessment around new standards can require a substantial commitment from schools. Schools may need to modify lesson plans, develop new assignments, purchase equipment, formulate new ways of tracking student performance, and interpret new student assessments to students, employers, and postsecondary institutions. To be effective, new assignments and assessments must clearly relate to students' interests and motivate them to work hard. The study provided the following main findings about case study sites' experience in modifying curriculum and student assessment:

KEY FINDINGS ON CURRICULUM AND ASSESSMENT

- **Instructors' ability to modify curricula is impeded by scarce resources and students' limited interest in performing some of the tasks prescribed by the standards.** Lack of planning time for instructors and scarce resources for purchasing new equipment appear to be slowing the rate of change in programs' curricula. Many students are reluctant to perform some of the new tasks required by the skill standards, in part because of their limited interest in skill certificates or the careers for which they were designed.
- **While instructor checklists are flexible and comprehensive, externally administered assessments appear to be more credible to employers and effective in influencing curriculum.** Checklists identifying competencies needed to earn a skill certificate typically cover all of the skills included in the standards. However, these checklists provoked only small changes in the tasks students performed and the kind of feedback they received from instructors. By contrast, assessments administered by skill standards organizations appear to stimulate greater changes in instruction and offer more credible documentation of student skills.

Three features of the new national and state skill standards can drive changes in local schools' curriculum and assessment: the skill standards themselves, skill assessment tools, and any program guidelines available (see Figure II.1). First, the national skill standards are the list of tasks individuals are expected to master as well as the knowledge and skills required to perform these tasks effectively. This list of skill standards (or "competencies") should shape both the content of local curricula and the focus of student assessments.

Second, many national standards groups or their state affiliates have developed assessment tools that can shape local assessment procedures, the topics instructors cover in class, and the tasks staff assign to students. The case study sites employed two main kinds of assessment tools: certification tests and competency checklists (see Table II.1). The certification tests are standardized assessments designed primarily to determine whether a student is entitled to a skill certificate. The National Institute for Metalworking Skills (NIMS) has introduced both written and performance-based assessments, while the National Retail Federation has piloted a written certification test in Louisiana. The two checklists used in the case study sites--the national one developed by PrintED and the state-level one developed by the Louisiana Retail Association--are designed both to help staff keep track of students' competencies and to provide a basis for issuing a skill certificate.

Third, in order to help programs interpret the standards, some national and state-level skill standards organizations have developed program guidelines--curriculum models, instructional materials, or program accreditation requirements. For example, the curriculum developed by the Illinois Retail Merchants Association (IRMA) provides detailed examples of lessons and assignments pertaining to each of the national retail standards. At the national level, both PrintED and NIMS have developed an accreditation process. Both organizations provide guidelines for their

FIGURE II.1

COMPONENTS OF SKILL STANDARDS THAT CAN AFFECT LOCAL CURRICULUM AND STUDENT ASSESSMENT

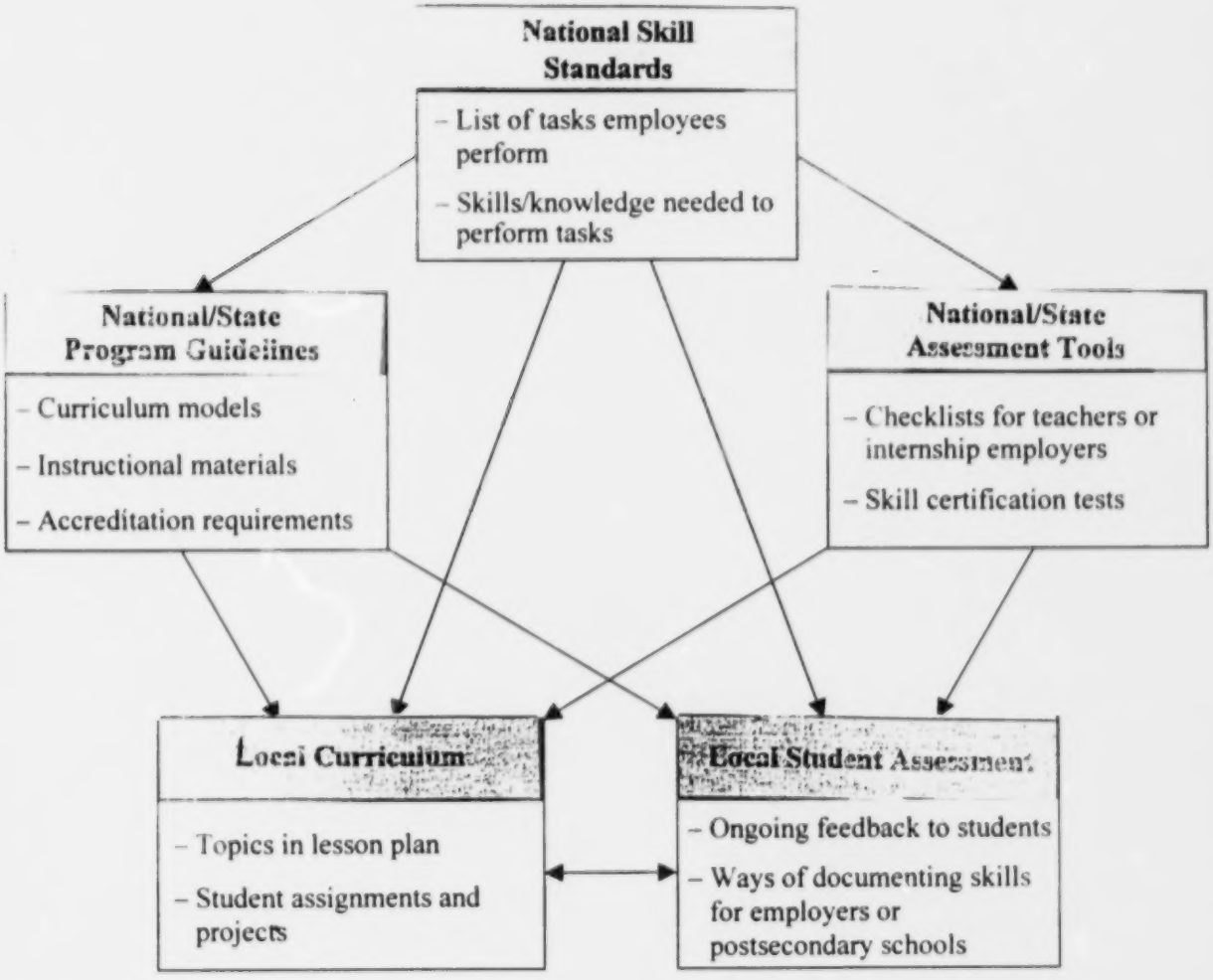
National Skill Standards
– List of tasks employees perform
– Skills/knowledge needed to perform tasks
National/State Program Guidelines
– Curriculum models
– Instructional materials
– Accreditation requirements
National/State Assessment Tools
– Checklists for teachers or internship employers
– Skill certification tests
Local Curriculum
– Topics in lesson plan
– Student assignments and projects
Local Student Assessment
– Ongoing feedback to students
– Ways of documenting skills for employers or postsecondary schools

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TABLE II.1

PROGRAM GUIDELINES AND ASSESSMENT TOOLS DEVELOPED BY NATIONAL AND STATE SKILL STANDARDS GROUPS

	Assessment Tools			Program Guidelines	
	Checklist for Use by Instructors/ Employers	Administered by Standards Group		Accreditation Requirements	Curriculum Model/ Instructional Materials
		Written Test	Performance-Based Test		
Printing / Printing Industries of America	X			X	
Metalworking / National Institute for Metalworking Skills		X	X	X	
Retail / Louisiana Retail Association	X	X[a]	X[a]		X
Retail / Illinois Retail Merchants Association					X

[a]In school year 1996-1997, the Louisiana retail program issued skill certificates based solely on checklists. Performance-based assessments were used only to grant rewards to students and programs. In school year 1997-1998, the Louisiana Business Partnership piloted a written test for use in conjunction with the checklists for issuing certificates.

accreditation requirements, which include a review of the topics in instructors' lesson plans, program facilities and safety procedures, and staffing.

This chapter examines how the national skill standards affected local programs' curriculum and student assessment procedures. In particular, we analyze the extent to which changes in program design reflect the lists of skill standards, the new assessment tools, and the guidelines developed by skill standards organizations. The chapter is organized around an analysis of changes in:

- ***Curriculum.*** The range of topics instructors cover and the mix of assignments instructors give individual students
- ***Student Assessment.*** The feedback staff provide to students and the manner in which students' skills are documented for employers or postsecondary institutions

A. CHANGING CURRICULUM

Local factors can affect how standards influence a program's curriculum. The deviations between a vocational program's preexisting curriculum and the new skill standards defines the number and kinds of changes needed: few modifications are necessary if the standards are consistent with both the topics instructors cover and the assignments they traditionally give to their students. The resources available to program staff can constrain the amount or rate of change. Finally, the interests and abilities of participating students can affect a program's success in engaging them in new tasks. In examining how instructors dealt with the challenge of restructuring curricula, we focus on three main questions:

- Before sites adopted the standards, how large was the gap between programs' preexisting curricula and the national skill standards?
- What resources were available to program staff to bring the curricula into accord with the standards?

- What kinds of curriculum changes did school staff make, and what factors were associated with greater changes?

1. Gap Existed Between New Standards and Old Tasks Assigned to Students

Before instructors could decide how they should implement the standards, they had to identify the holes in their preexisting curriculum. By comparing it to the national skill standards, assessment tools, and program guidelines, school staff could identify two kinds of gaps: (1) broad topics that had been missing from the curriculum, and (2) specific tasks that individual students needed to practice more often.

The mix of topics that instructors had covered in the past was broadly consistent with the national standards. In most cases, instructors had at least touched on each of the main categories of competencies included in the skill standards and measured by the assessment tools. In addition, the new state and national program guidelines pointed to few major gaps in instructors' lesson plans: the topics identified in the accreditation requirements, curriculum models, and instructional tools were all similar to those that instructors had covered in the past. Some printing and metalworking instructors recognized that, to secure accreditation, they had to make some modest changes in the curriculum, such as elaborating on the material on measurement issues or safety procedures. In addition, accreditation reviewers would require some programs to repair or upgrade equipment in their class. However, these changes did not require instructors to alter substantially the mix of topics discussed in class.

While the standards were broadly consistent with the overall scope of the preexisting curriculum, a more significant gap existed between the standards and the specific assignments students traditionally performed. In most classes, each student worked on a distinct mix of tasks, reflective of their individual interests and abilities. Students' assignments usually covered only a

portion of the competencies contained in the national standards. Many students also worked on tasks unrelated to the standards. The biggest gaps between the standards and individual students' assignments were in the printing and metalworking classes, perhaps because the national standards for these career areas are quite extensive. The gaps in students' assignments often pertained to both technical tasks (such as producing precise metal parts on a milling machine) and mathematical competencies (such as converting decimals to fractions or using algebraic formulas to calculate the appropriate cutting speed of a drill).

Three features of the case study programs contributed to the gap between the standards and the tasks students had practiced in the past:

- ***Programs accommodated students with diverse interests and abilities.*** Instructors were accustomed to allowing students to focus on projects that were consistent with their skills and interests. For example, in one metalworking class, students who planned to attend four-year colleges were reluctant to practice "dirty" traditional metal cutting operations (tasks that must be mastered to earn the new NIMS skill certificate). Instead, these students preferred to work on Computer-Aided Design and welding tasks. Some printing students were reluctant to practice basic offset printing tasks, preferring to draw on the computer. The retail programs attracted some students who wanted to secure a nontechnical co-op job but did not want to prepare for a career in the retail industry.

- ***Variation in students' workplace experiences reinforced differences in skills.*** While most students obtained some kind of job before they graduated from high school, only the retail programs traditionally sought to assign all students to an internship. In most of the printing and metalworking programs, the students with focused interests and good technical skills were most likely to obtain after-school or co-op jobs that would allow them to advance their skills further. In most of these programs, fewer than half the students had an extended worksite experience in the industry. While more retail students had co-op jobs, the quality of their positions varied a great deal, and only a few students gained the opportunity to master a broad range of skills relating to the standards.

- ***Limited facilities sometimes impeded students' ability to master specific competencies.*** Most sites relied on equipment that was either obsolete or in disrepair. While the quality of equipment rarely prevented programs from covering most of the major skill standards topics, equipment constraints did affect the number of students able to meet specific skill standards. For example, some of the metalworking programs had lathes that could not produce parts within the tolerances required by the NIMS certification test. Students

in these programs could not learn how to achieve the prescribed tolerances unless they could use better equipment. Some of the retail and printing programs had one or two good computers and many mediocre ones, which made it difficult for all students to develop specific skills.

2. Slim School Resources Available to Bridge Gaps

After identifying gaps in the curriculum, school staff had to set priorities based on limitations in local resources. The case study programs confronted two major constraints: (1) limited staff time for developing and documenting new lesson plans and student projects, and (2) scarce financial resources for purchasing new equipment.

Like most teachers, the vocational instructors in case study sites bore most of the responsibility for modifying their curricula. Except in the retail sites, where some instructional materials were developed by the industry partners, vocational instructors were on their own in responding to the skill standards. Academic teachers were rarely involved (if at all), since the curriculum changes were focused almost entirely on vocational classes. While some district-level staff encouraged schools to adopt skill standards, they were not able to provide staff resources in support. School-level administrators typically did not have either the time or the expertise to make contributions. None of the employer advisory committees were sufficiently active to provide detailed feedback on instructors' plans to modify curricula.[1]

Although the program guidelines required few major changes in the curriculum, they sometimes impelled instructors to spend a great deal of time reorganizing and documenting their lesson plans. While the Illinois retail curriculum model was a useful tool, the retail instructors still had to review the model and decide what to cover. Where program staff sought to secure accreditation (in the printing and metalworking sites) they usually had to develop a new outline of their curriculum

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[1]See discussion in Chapter III about the role of employers in supporting programs' efforts to implement standards.

organized around the national standards. Even where instructors had traditionally covered all the topics prescribed by the accreditation groups, they still needed to reorder those topics and draw on terminology suggested by the standards. One printing instructor estimated that it took him approximately 250 hours to complete the accreditation process, with most of that time spent documenting his preexisting curriculum, student assessment process, and safety procedures.

Even more staff time was required of instructors who wanted to develop new projects to help students master specific competencies. Only the retail standards organizations (IRMA and the LBP) provided instructors with detailed suggestions of new projects. While a few of the metalworking and printing instructors secured some guidance from other instructors who had already implemented the standards, most of this guidance pertained to the overall process of accreditation rather than new assignments that could help students cultivate particular skills.

Some schools also had reform goals that competed with standards, at least in the short term. For example, some schools were seeking to expose students to a variety of related vocational programs and asked instructors to develop an introductory curriculum for first-year students, rotating them briefly through their programs. Some schools were also focusing on ways to incorporate more academics into the vocational curricula. While both efforts were potentially compatible with the local skill standards initiatives, they required substantial planning time, which was already in short supply.[2]

Budgets for equipment and facilities were also tight. Several schools had very small capital budgets, which forced vocational programs to compete with each other for limited funds. For

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[2]For example, when one of the instructors was preparing for his final accreditation site visit from a national skill standards organization, he was asked to revise his entire curriculum to identify all the academic competencies that were or could be used in each unit of his class. The instructor perceived this request as a major distraction, since he had received no extra planning time for either the skill standards initiative or this new academic integration effort.

example, the schools in Michigan were unable to allocate new resources from their own budgets to the printing and metalworking programs. While the other sites had somewhat more funding available, no school was able to provide substantial resources through its regular capital budget.

The slim school resources available at the school and district level heightened the need for external support. Most programs were able to secure useful, albeit modest, resources from state agencies, skill standards organizations, employers, or other external groups. The programs drew on three main forms of assistance:

- ***Small Planning Grants.*** Even a small amount of external funding could make the process much easier. For example, the Clackamus Professional Technical Education Consortium--a regional professional development agency--provided a $19,000 planning grant to the Milwaukee, Oregon printing program. This grant paid for some of the printing instructor's time during the summer when he began to modify the curriculum and prepare for the PrintED accreditation reviews.

- ***Technical Assistance and Workshops.*** While opportunities to learn from colleagues have been constrained by the limited number of schools adopting national skill standards, some states have been instrumental in purchasing technical support for instructors. For example, the New Jersey Department of Education organized workshops for printing instructors who were trying to implement the national standards. The workshops were led by instructors in other states who had already implemented the standards. In some cases, technical assistance providers have given teachers useful tools: both the Louisiana and Illinois retail trade associations contracted with groups that developed instructional materials and led workshops on how to use these materials.

- ***Equipment Financing or Donations.*** Programs secured resources to upgrade equipment from state agencies, skill standards organizations, or individual employers. New Jersey provides small grants to programs implementing the standards--funding schools typically use to purchase new equipment. Entrepreneurial instructors were often able to secure grants or use equipment from local employer partners. In addition, the LBP offered equipment rewards to programs in which students and staff accomplished specific tasks (such as students competing in national vocational club competitions and staff visiting local employers).[3]

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[3]See discussion in Sections II.B.1 and III.B.2.

3. Curriculum Change Usually Modest

Because of the constraints on local resources and the diversity of students' interests, most programs were unable to make dramatic changes in the curriculum. Some instructors did not have sufficient planning time to formulate many new projects. Even where instructors could devote the time, students were often reluctant to practice new tasks.

While all the sites were able to satisfy the national or state program guidelines, most instructors made fairly modest changes in the mix of topics they discussed and the assignments they gave to their "average" student. Most instructors reported making two main kinds of changes in the curricula:

- ***Filling Small Holes in Technical Curricula.*** While every site added a few topics to the technical curriculum, most instructors noted that these additions were fairly narrow. For example, several of the metalworking and printing programs added a unit on how to handle hazardous materials. Two of the printing programs added some assignments related to binding. The retail programs in Chicago and Louisiana enhanced the material on inventory control procedures and customer service. Usually, the addition of these new topics pertained to only a few class periods per year.

- ***Enhancing Academic Instruction Outside of Academic Classes.*** Some of the programs increased the amount of time students spent practicing academic skills, either as part of the vocational curriculum or during the time that students normally attended the vocational class. In most programs, these enhancements in academic instruction were modest. For example, one of the printing instructors expanded the amount of time spent on math (mostly fractions and decimals) from one class to four periods.

While most programs had difficulty engaging students in new tasks, there were at least two notable exceptions. Instructors in two sites--the L'Anse Creuse metalworking program and the Louisiana retail programs--succeeded in engaging most students in new projects related to the national skill standards. In L'Anse Creuse, the metalworking instructor was able to convince most students to spend a great deal of time practicing both technical and math skills covered in the NIMS third-party assessments. In Louisiana, most retail students worked on new projects--such as sales

displays for school-based businesses or local retail employers--that reinforced skills included in the national retail standards.

The success of these two programs in engaging students in new projects was due in large part to the support they secured from local employers and postsecondary institutions, external partners that helped instructors modify the curriculum. For example, the LBP and individual local employers in Louisiana helped formulate new student projects and other student activities. Macomb Community College reviewed the L'Anse Creuse metalworking curriculum before agreeing to grant college credits to those completing the program successfully. In both cases, the changes in the curriculum were accompanied by incentives that motivate students to work on new tasks: the rewards LBP offered for completing new projects and the college credits Macomb granted for earning a skill certificate (see discussion in Section B.1). Both programs were also able to upgrade equipment through donations from local employers or local trade associations, making their facilities more attractive to students and enabling more participants to practice tasks related to the standards.

Thus, the sites that made the most dramatic changes in curriculum were those that engaged program participants in new activities organized around the standards. The ability of programs to motivate students hinged in part on the kinds of rewards offered. Instructors' success in focusing students' attention on the standards is closely related to programs' assessment strategies, the topic explored in the rest of this chapter.

B. CHANGING STUDENT ASSESSMENT

Changes in assessment procedures can enhance both the skills and the credentials of students. Our analysis of the assessment procedures of local programs focuses on two questions:

- How did the standards initiatives affect the kinds of feedback that instructors provided to students regarding their progress in mastering specific skills?
- Did the skill standards initiatives help students assemble credentials perceived as useful by school staff, local employer partners, or postsecondary institutions?

1. Substantial Changes in Feedback to Students May Require New Incentives

In most sites, instructors continue to provide the kinds of feedback to students that they did before their program adopted national skill standards. While the retail and printing instructors use new competency checklists developed by state or national skill standards organizations, these assessment tools do not substantially affect the timing or the focus of the feedback students receive. Instructors rarely used the checklists to derive students' grades, and few students have access to their checklists.[4] While the feedback that metalworking instructors provide to students has changed, focusing more on skills captured on the NIMS performance and written tests, this change is largely confined to instructors' interactions with the subset of students who are interested in earning a metalworking skill certificate.

Three factors are limiting the changes in feedback that instructors provide to students. First, the lack of change in most students' assignments restricts instructors' opportunities to provide new kinds of feedback. As long as students work on projects that are not closely related to the standards, instructors are less likely to provide much pertinent guidance.

Second, both instructors and students recognize that skill certificates do not yet have much market value. Instructors acknowledged openly that most local employers and postsecondary institutions do not yet place much weight on the certificates, in part because few institutions are

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[4]In addition, the new checklists had little effect on students' work-based activities (see Section B of Chapter III).

aware of the standards. While most instructors hope that the certificates will rise in value, they have difficulty convincing students that they should work hard to earn these credentials.

Third, some instructors have had difficulty determining what material is covered on the written tests developed by skill standards organizations, which prevents them from preparing students for these assessments. All of the metalworking instructors and the Louisiana retail teachers have had some difficulty securing information on the scope of the exams introduced by skill standards organizations. In one of the three metalworking sites, the instructor was unable to secure the NIMS sample test. Another metalworking instructor was able to obtain the sample test but believed it was of limited value because it did not cover some of the material on the exam. Perhaps these problems will become less acute after the skill standards organizations develop more detailed learning objectives, instructional materials, or sample test questions that can be shared with program staff.

More substantial changes occurred in the two programs introducing new student and staff incentives.[5] The Louisiana and L'Anse Creuse programs developed rewards that appeared to motivate both students and instructors:

- ***Student Incentives.*** The L'Anse Creuse instructor told students that only those making progress toward earning a skill certificate could obtain well-paid apprenticeships and co-op jobs, which motivated several students. In addition, the community college credits were granted only to students who completed the program successfully and earned a skill certificate. The opportunity to earn rewards in Louisiana led many retail students to work on new projects.

- ***School Staff Incentives.*** In addition to the rewards offered to students, the Louisiana Business Partnership allowed school staff to earn valuable equipment for their programs. A variety of school staff, including instructors, principals, assistant principals, and guidance staff, could earn rewards.[6] Different rewards were devised for instructors

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[5]See Chapter IV for a more details on the kinds of student incentives introduced by case study sites.

[6]In addition, individual employers could help school programs earn rewards by participating in (continued...)

(cameras, printers, scanners) and administrators (TVs, VCRs, overhead projectors), which allowed the program to develop a broader constituency in most schools.

As long as skill certificates do not have much value in the marketplace, programs will have difficulty motivating either students or school staff to make the investments necessary to take advantage of new national skill standards and credentials. The future value of skill certificates is likely to hinge in part on the kinds of assessment tools used by skill standards initiatives--an issue we explore next.

2. Checklists Are Flexible, but External Assessments Are More Credible

Most skill standards initiatives seek to document students' credentials in ways that employers value. The case study sites relied on one of two mechanisms to document students' skills and provide the basis for a skill certificate: (1) checklists of skills that teachers maintained, and (2) external assessments administered by skill standards organizations. While each form of assessment has some advantages and may be appropriate in certain contexts, the externally administered tests appear to provide the most solid basis for a portable credential. In this section, we examine the comparative advantages of checklists and externally administered tests.

Checklists Can Cover Large Range of Skills and Accomplishments. Teachers and employers can potentially assess students' performance over a long period of time. Using these extensive assessment opportunities, checklists can cover many features of students' performance. For example, PrintED has developed eight checklists, each of which covers a large number of competencies.[7] Some checklists, like those employed in Louisiana's retail programs, capture

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[6](...continued)
various activities (for example, providing co-op jobs to students).

[7]The introductory checklist, which all students must complete to earn a certificate, covers 128
(continued...)

assessments of both instructors and employers. By combining both groups' perspectives, these checklists can offer a more complete appraisal of students' competencies. Checklists can also cover skills that would be difficult to measure in a test. For example, the employer portion of the Louisiana checklist includes check boxes for students' ability to "convert phone calls into sales," "assist with training of new employees," and "work out conflicts with co-workers." Finally, checklists can be applied flexibly, allowing each student to demonstrate particular skills in a different mix of projects. This may allow instructors to engage students more effectively by giving them assignments that correspond to their career interests and aptitudes.

The flexibility of checklists can also be a weakness, however. Outsiders have difficulty assessing the validity and meaning of a checklist, because they do not know how individual instructors rated students' performance. Indeed, for the sites that use checklists as the basis for a skill certificate, only those employers and postsecondary faculty who knew and trusted program staff valued the certificates. Even some of the employers working closely with schools remarked that they would not give much weight to the certificates issued on the basis of a checklist, because they could not determine how stringently instructors assessed particular competencies. In Chicago, employers convinced the retail skill standards program to not include the checklist on the back of the skill certificate issued to students, because they preferred job applicants to independently describe their accomplishments. Partially because of this decision to remove the checklist from the certificate, most teachers did not use the checklists and relied instead on preexisting techniques for keeping track of students' performance.

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[7](...continued)
competencies. The other seven checklists each cover from 39 to 83 competencies. Printing students typically can display these competencies over a one- to three-year period, allowing them to secure a distinct certificate for each of seven specialties (in addition to the general introductory certificate).

External Assessments Are Narrower but More Credible. Employers' uncertainties about the consistency of assessments administered by teachers have contributed to the interest in "third-party" assessments: written and performance-based tests that are administered by industry-based standards groups. The most fully developed assessments used by the case study sites are the metalworking assessments developed by NIMS.

Most case study school and employer staff who are familiar with the NIMS assessments perceive that they are a credible foundation for a portable credential. Both groups feel that students' success in passing these tests is a good predictor of their performance in an entry-level machining position. Employers like the tests' clearly defined assessment criteria and the independence of the reviewers (which include manufacturers selected by NIMS). Some employers are impressed by the simple but highly precise metal parts students have to produce to pass the performance-based tests. In addition, both employers and instructors note that the written tests are a useful indicator of students' quantitative problem-solving skills.

In contrast to the retail and printing checklists, the NIMS third-party assessments appear to have prompted somewhat more substantial changes in instructors' curriculum. The metalworking instructors note that the perceived and actual success of their skill standards initiatives hinge in large part on the number of students taking and passing the NIMS assessments. Consequently, they have made sure that the students interested in earning skill certificates spend a great deal of time practicing the tasks that the performance-based assessments cover.[8] In addition, two of the three programs have expanded the amount of math instruction to help students prepare for the written tests. In contrast, the introduction of the checklists appears to have led to only modest changes in the mix of assignments instructors give to students.

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[8]In one metalworking program, this change has affected all students in the class; in the other two, it only has affected the subset of students interested in earning a skill certificate.

While external assessments may provide a credible signal of students' competencies and prompt large changes in programs' curricula, these assessment tools are somewhat limited in the range of skills they can measure in a cost-effective and reliable manner. Even the NIMS assessments, which are very extensive (and thus fairly expensive to administer), do not capture some technical skills that are potentially relevant to manufacturing jobs. Moreover, these tests can not easily capture employability skills such as those the retail checklists cover. For jobs where few technical skills are valued and where employers simply want reliable employees who are motivated and can learn new tasks quickly, external assessments may not carry much more weight than a personal recommendation from an employer or instructor. In addition, some employers may not want to take the time to interpret an external assessment. Indeed, some retail employers and instructors expressed uncertainty as to whether performing well on a written retail test was likely to substantially enhance students employment opportunities in the industry.

Where employers place substantial value on basic, technical, and employability skills, combining several assessment strategies may make sense. Checklists, external assessments, and job recommendations can each capture different sets of skills that employers value. Therefore, some skill standards initiatives may seek to combine these assessment tools.

Problems can occur, however, when programs combine checklist and external tests that assess different skills. The challenge associated with using more than one assessment approach was illustrated when the LBP introduced a new standardized test designed to complement the checklists already in use. During school year 1997-1998, the LBP decided that students could receive a certificate only if they displayed all the competencies listed on the checklists and passed a new written test piloted on behalf of the National Retail Federation (NRF). After administering the new NRF test to some students, several LBP staff and instructors questioned its content, perceiving that

it placed too much emphasis on students' career interests and aptitudes and too little weight on specific skills, including those covered in the checklists and standards. As a result of the concerns about the value of the test, the LBP chose not to issue any certificates to the graduating class of 1998, whether or not students had taken and passed the test. This situation highlights the difficulty of reaching a consensus on new standardized tests, particularly after schools have already introduced checklists based on skill standards.

III. INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

At the national level, employers and industry associations have played key roles in the development of national skill standards by identifying critical skills and leading the new voluntary partnerships. Policymakers have encouraged the deep involvement of industry representatives in the skill standards movement, recognizing that standards will have little positive impact unless employers respect and use them.

The success of the new skill standards hinges not only on industry involvement at the national level, but also on employers' roles in supporting *local* efforts to implement them. Both individual employers and regional industry associations can provide crucial guidance and material support for local initiatives. The main findings on the involvement of employers and industry organizations in skill standards initiatives are:

KEY FINDINGS ON LOCAL BUSINESS AND INDUSTRY ROLES

- **Only where school staff and industry associations engage in targeted outreach have many local employers become familiar with the skill standards.** Many employers who work with schools remain unfamiliar with the national standards or uncertain of the value of skill certificates. The most successful outreach efforts targeted firms likely to value skill standards and certificates. Instructors usually needed to offer tangible evidence of program improvements before employers offered substantial support to schools' skill standards initiatives.
- **When individual employers perceive that they have a stake in the success of local skill standards initiatives, they often provide important contributions.** Employer support can be won by demonstrating that students are productive employees and by giving employers more of a role in shaping program design. Case study sites have employed these methods to secure new internships for students and equipment for classrooms.
- **Regional industry associations have used their employer networks and political influence to increase substantially the resources available to skill standards initiatives.** Regional associations have made contributions that go well beyond those of individual employers. Besides providing technical assistance, they can often secure public funding and recruit employers to support schools' efforts.

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Local skill standards initiatives can benefit greatly from the assistance of employers and regional industry associations. In this chapter, we examine two main issues:

- The challenges faced and strategies employed in engaging *individual employers* in skill standards programs
- The capacity of *regional industry associations* to assist local skill standards initiatives

A. ENGAGING INDIVIDUAL EMPLOYERS

Employers' support for skill standards can take many forms. Simply becoming familiar with the skill standards can be an important contribution if it leads to broader recognition of the standards. Skill standards initiatives can also benefit from the kinds of contributions that employers have traditionally provided to vocational programs, including:

- ***Providing Work-Based Learning.*** Making workplace activities available to students is the primary contribution of most employer partners. Employers committed to skill standards can design workplace activities that allow students some opportunity to use skills included in the standards.
- ***Furnishing Equipment.*** Fully implementing the skill standards may require vocational programs to purchase new equipment. Employers can donate equipment or provide grants for this purpose.
- ***Offering Guidance on Curricula.*** Vocational instructors often struggle with the task of translating the skill standards into practical instructional materials. Local employers can assist in these modifications by reviewing and suggesting refinements to programs' curricula.
- ***Recruiting Other Employers.*** Employer partners can also help recruit other employers to support a skill standards initiative. Local business people frequently have wider networks than school staff and may have more credibility among other employers.

Our analysis of employers' roles in the case study sites focuses on two issues: (1) the *challenges* sites face in familiarizing local employers with the national skill standards and securing their support, and (2) the *strategies* sites are employing to engage employers.

1. Local Employers Are Unclear About the Viability of Skill Standards

Skill standards initiatives face several challenges in winning the respect and support of local employers. Before employers can support local initiatives, they must be both familiar with the standards and aware of schools' efforts to implement them. Sites must also convince employers that the standards are useful and that schools are implementing them effectively. Only the most committed employers are likely to modify students' workplace activities around skill standards, since this objective is often difficult to achieve.

Even Employers Involved in Programs Are Often Unfamiliar with Standards. Most vocational programs have some established relationships with local employers, so programs adopting skill standards already have a network for securing employer support for their standards initiatives. Employer partners may already serve on advisory committees, provide input on curricula, or offer workplace experiences to students. These existing employer roles could be adapted to address implementation of skill standards.

However, many employers working with schools are still not familiar with the new skill standards. Local standards initiatives have sometimes failed to acquaint their employer partners with the skill standards. In addition, although some industry groups have promoted the standards with their members, most local employers are still uninformed about them. Some of the employers involved in the case study programs are not only unaware of the standards, but also unfamiliar with the national industry associations in the industries that developed them. Several factors contribute to employers' lack of familiarity:

- ***Standards are relatively new.*** Both the skill standards themselves and the local implementation efforts are still quite recent. At the time of our site visits, the skill standards adopted by the case study program were between four and seven years old.[1] In addition, most sites' initiatives were in only their second year of implementation (see Table I.1). Some of the sites are considered pilots or demonstrations expected to inform subsequent standards initiatives. Thus, most local employers have had little time and few opportunities to learn about the standards.

- ***School staff often feel industry groups should be responsible for promoting standards.*** Even though few industry associations have mounted large-scale marketing campaigns, some school staff believe that industry groups should bear most of the responsibility for informing individual employers about the standards. Instructors reasoned that these groups not only sponsored the development of the standards, but also have the networks and credibility needed to perform this marketing task.

- ***Schools lack resources for effective promotion.*** Even the case study schools interested in promoting the standards do not have sufficient resources or the appropriate organizational structure to market the standards effectively. Most schools have difficulty reaching out even to their existing employer partners, much less the majority of firms in a local industry. While some instructors have good employer networks, they sometimes have insufficient time to maintain them. In many schools, the staff that have the most contact with employers are co-op supervisors--generalists who must develop work-based activities for all vocational students regardless of their career areas. The co-op supervisors in the case study sites were generally unfamiliar with the standards, since they had to deal with so many different kinds of vocational programs.

- ***Employers traditionally have a low level of involvement in programs.*** Few of the case study programs have a tradition of systematically involving their employer partners in program design decisions. Many programs' advisory committees have not been very active, and committee members are frequently unaware of the details of the curriculum or how it has changed. Employers who provide workplace experiences for students but do not serve on an advisory board are generally even less familiar with the design of the school-based programs. Hence, few of the employers working with schools are familiar with recent changes in the curriculum.

Some Employers Who Approve of the Standards Lack Confidence in the Programs. Once employers become familiar with the skill standards, they must be convinced that the standards are being implemented effectively. Even employers who agree that the standards focus on important

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[1]The oldest are the PrintED standards, which were developed during the late 1980s and disseminated nationally in 1991. The National Institute for Metalworking Skills (NIMS) produced the first set of metalworking standards in 1995, and the National Retail Federation produced retail standards in 1994.

skills sometimes question whether they can be applied successfully in high schools' vocational programs.

Some employers in the case study sites questioned whether vocational programs implemented the standards faithfully. These employers perceived, often correctly, that many of the students attracted to vocational programs have little interest in school and only a vague interest in their industry. Some employers feared that instructors would feel obligated to grant skill certificates to students who were not really proficient. This concern was particularly common among printing employers, who questioned whether instructors would maintain high standards in reviewing and certifying all the many technical skills contained in the PrintED checklists.

Employers question not only the rigor but also the completeness of the standards. Even employers who trust that certificates accurately reflect students' technical skills are sometimes concerned that other, more general skills are not sufficiently emphasized in the standards. In interviewing job applicants, most employers reported placing the greatest importance on their assessment of applicants' work ethic, initiative, and basic communication skills. These "soft" skills are not covered in the printing and metalworking skill standards, and most are only indirectly captured by the retail skill standards. While instructors sometimes told employers that only the most motivated students would earn skill certificates, employers had little way to gauge the accuracy of this claim.

Weak Employer Commitment Can Limit Enhancements in Workplace Activities. While workplace activities can provide useful opportunities for students to develop skills contained in the standards, programs face significant challenges creating such opportunities. With the exception of the retail programs, only a minority of students in the case study sites participate in any workplace

activity arranged by the school.[2] In addition, programs face two compounding hurdles: (1) only employers dedicated to the skill standards initiatives are willing to take on the difficult task of structuring students' assignments around the standards, and (2) the ability of schools to overcome employers' low commitment is limited by the standardized procedures and generalist staff schools sometimes use to arrange work-based learning activities.

Employers are rarely willing and able to organize students' workplace activities around specific skill standards. Considering the difficulties that schools face in persuading employers to recognize the value of reorganizing the *classroom* curriculum around standards, it is not surprising that few employers are willing to devote the substantial resources required to create internships in which students can practice the specific skills covered by the standards. Many employers who provide co-op jobs for students do so primarily to fill part-time, entry-level positions, which may not address the skills covered in the standards. Even employers who place a premium on students' skill development often find it difficult to structure students' internships around the standards. Regardless of why employers participate, several operational constraints can impede their willingness or their ability to organize workplace activities around the standards:

- ***Production Demands.*** The type and schedule of production often affects the kind of training that can be easily offered to students. Training students to learn skills unrelated to the firms' current production schedule can divert both students and their managers from productive work.

- ***Specialization of Firms or Departments.*** Some employers are too small or specialized to cover the full range of skills addressed in the standards. Even larger firms may be departmentalized, which makes it harder to rotate students through a variety of positions.

- ***Established Employee Assessment Methods.*** Even changing employers' performance assessment procedures to be more consistent with the standards is sometimes difficult,

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[2]While many other students have jobs, typically found on their own, these positions are usually unrelated to their vocational class.

because it may require employers to spend extra time in conducting students' reviews or to treat students differently from other employees.

- ***Labor Relations.*** Labor issues can also constrain the flexibility of employers to accommodate changes in students' workplace experiences. Though unions are not key participants in any of the case study sites, they have sometimes influenced the mix of firms participating. At L'Anse Creuse, for example, the most appealing and relevant workplace activities for machining students are in nonunion firms, because union firms often reserve the most attractive positions for union members.

The school staff who arrange students' workplace activities with employers are not always knowledgeable about the skill standards, which makes it difficult for them to overcome employers' lack of enthusiasm. Instructors often do not have the time to work closely with each employer, so, in many schools, other staff are responsible for placing students in jobs. These staff--typically co-op supervisors--are often not familiar with the competencies covered by the skill standards or with the details of any particular vocational program. Hence, they cannot easily identify job opportunities relevant to the skill standards, formulate suitable training and assessment plans, or provide feedback to employers and instructors regarding students' progress in mastering relevant skills.

Long-established procedures for managing students' workplace experiences compound the difficulty of adjusting these activities to reflect skill standards. Most of the case study programs have been placing their students in part-time co-op jobs for as long as the programs have existed, while the skill standards are still very new. These programs have formalized procedures, which are often school- or districtwide. Introducing new assessment procedures associated with the skill standards can be difficult where school districts require that employers use standard evaluation forms to assess students' workplace activities and progress. When programs in Louisiana began requiring employers to complete skill standards checklists, they still felt obligated to ask employers to complete the older standardized assessment form to determine students' co-op grades.

Still, when both school staff and at least some employer partners are fully behind the standards, changes to students' workplace activities are possible. As discussed in the next section, school staff have been able to assign students more challenging and relevant jobs with the help of committed employers.

2. Visible Changes Are Necessary to Secure Tangible Employer Support

The programs in our case study sites employ various strategies to overcome employers' reservations and elicit their support. In particular, sites are (1) enhancing employer outreach, (2) focusing employers' attention on program improvements related to the standards, and (3) offering greater opportunities for employers to shape programs' design.

Effective Outreach Requires a Significant Time Commitment by Informed Staff. Several case study sites attempting to expand industry support have targeted employers strategically. Carefully targeted outreach can win programs both financial support and attractive work-based learning opportunities for students. Effectively targeting outreach efforts requires staff familiar with the skill standards to spend time identifying suitable employers and securing their support.

Targeted outreach can be time-consuming. School staff have to work hard to identify not only new partners but also suitable targets among employers that have worked with the programs previously. In addition, staff have to screen potential employers carefully. For example, the metalworking instructor in L'Anse Creuse had to identify and recruit employers who appreciated the technical machining and problem-solving skills emphasized in the NIMS standards. Similarly, a Louisiana instructor spent time carefully explaining the standards to prospective employers and gauging their reactions so that she could avoid assigning student interns to employers who do not value the skills emphasized in the standards or who are unwilling to trust students with challenging

tasks.[3] All these efforts have been successful in expanding substantially the support provided by local employers.

The most successful outreach efforts are led by program staff who are very familiar with the skill standards and hence can quickly gauge whether a particular employer is likely to value the skills covered. Instructors have been more successful than co-op supervisors in leading outreach efforts, since the former are more familiar with the skill standards and accompanying changes to their vocational programs. In Chicago, staff from the state retail industry association were able to identify and recruit large retailers that value the customer service skills stressed by the retail standards.

Successful outreach efforts have found committed employers who are willing to customize workplace activities to some degree to provide students with opportunities to practice and demonstrate skills included in the standards. For example, the more dedicated retail partners in both the Chicago and Louisiana sites have allowed students in skill standards programs to rotate through multiple positions within a store, giving them a chance to experience different types of retail jobs that require a variety of skills. L'Anse Creuse also succeeded in substantially upgrading the quality of students' work-based activities, in part by identifying employers willing to offer positions in which students could apply the technical skills emphasized in the metalworking standards.

Nonetheless, case study staff involved in employer recruitment have had to remain realistic and flexible, accepting some student internships that are not particularly relevant to the standards. Few school staff believe that they can redesign their co-op program around skill standards. While some of the workplace activities provide good opportunities to practice skills identified in the standards, the match between these activities and the standards is rarely perfect.

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[3]This instructor gave preference to employers who offer students opportunities to help with bookkeeping or inventory management or who are willing to rotate students through several positions.

Evidence of Improved Program Design or Student Skills Can Increase Employer Support. School staff cannot mobilize a substantial amount of employer support by simply referring to the fact that they have adopted national skill standards. Instead, staff generally need to focus employers' attention on the most attractive features of their initiatives and the specific accomplishments of students. Program staff were more likely to establish durable partnerships with employers after they delivered on some of the promises implicit in the skill standards.

Employer recruitment efforts were sometimes more successful after program staff completed significant changes in the curriculum and facilities. For example, several employers provided substantial grants to the L'Anse Creuse metalworking program after seeing how the instructor had modified his curriculum and upgraded some of the metal lathes in the school.

Concrete demonstrations of increasing students' skills and motivation levels are also important. Many employers who became involved with the case study sites after their adoption of skill standards brought with them a rather negative image of traditional vocational students. These employers were pleased with the high quality of the students from some of the skill standards programs. For example, some of the Louisiana retailers were willing to increase their involvement in the retail skill standards programs after students demonstrated important skills working at a school-based enterprise. The reward system in Louisiana also increased the motivation of students in co-op jobs, which impressed their employers.

Giving Employers a Measure of Control Can Strengthen Commitment. While employers who are impressed by program improvements may want to recruit program graduates, they still may be unwilling to offer tangible support unless they perceive that they have a significant stake in a skill standards initiative. While serving on vocational program advisory boards can make some employers feel involved, this form of input is often too remote to give them a significant voice in the

program's success. Many advisory boards meet infrequently, and their members have little input into programs' designs.

Employers may develop a sense of ownership in a program if they are given some control over key decisions. For example, the metalworking instructor in L'Anse Creuse developed a club of employers who contribute funds to the program. These employers have the authority to approve or reject proposed equipment purchases and also receive benefits, including priority to interview program graduates for job openings. Through this club, the instructor raised about $200,000 in a single year, which allowed him to purchase more equipment for his program.

Expanding employers' influence over key program decisions could raise some concerns, however. School-level administrators or district staff may believe that they need to retain control over key investment and curriculum decisions to ensure that the program emphasizes skills that are relevant not only to the employers actively involved in a program but also to other employers and to postsecondary programs. Where district or school administrators have these concerns, programs may need to explore more incremental enhancements in the role of vocational advisory committees.[4]

Though programs implementing skill standards have received critical support from local employers, most individual employers provide only a small amount of assistance. Lack of familiarity with and respect for skill standards sometimes limits the amount of support employers provide. In addition, vocational programs usually face a free rider problem in requesting substantial support from individual employers: a firm usually has little incentive to provide substantial donations to a vocational program, since these contributions enhance the human capital of students who could be hired by other employers (including competitors) and the firm can often recruit program graduates

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[4]For example, schools may require industry advisory committees to review and vote on any significant change in curriculum or equipment. If the advisory committee does not approve a proposal, schools could be required to consult district-level staff.

without making any contributions. Industry associations can at least partially address this problem by representing the interests of many firms in a local industry and by spreading program costs widely among those firms. The next section examines the role that industry associations have played in the case study sites.

B. LEADERSHIP OF REGIONAL INDUSTRY ASSOCIATIONS

While the national staff of trade associations have played a lead role in the development of industry skill standards, they have had difficulty supporting local implementation efforts. These staff often have neither the time nor the networks needed to forge connections between programs and individual local employers. Moreover, few national industry associations have either the political base or the credibility to help programs mobilize local public support for implementation efforts.

Industry associations at the regional level are sometimes well positioned to provide technical and political support to local skill standards initiatives. Since these associations typically represent the interests of firms at the state or regional level, they are generally more familiar than national organizations with the operations of individual firms. Hence, they can often identify and help recruit firms that are appropriate partners for local programs that are implementing skill standards. Regional industry associations are familiar with the labor force needs of local employers, and thus can both verify that the skills identified in the national standards are valued in the local labor market and help programs identify the parts of the national standards to emphasize most in the curriculum.

Regional associations generally appreciate the merit of the national skill standards more readily than individual employers do. Some of the association staff interviewed for this study are vocal supporters of developing national portable credentials, which would allow employers to assess the skills of workers trained in any state. This support and familiarity with national standards reflects

the fact that most of these regional industry groups are affiliated with the national associations responsible for developing the standards.

While we did not deliberately seek to identify case study sites in which regional associations are active, employer organizations are playing a conspicuous role in at least three of our six sites.[5] These three sites have received valuable support from five associations: the Illinois Retail Merchants Association (IRMA), the Louisiana Retailers Association (LRA), the Oregon Metals Industry Council (OMIC), the Oregon Precision Metal Fabricators' Association (OPMFA), and the Pacific Printing and Imaging Association (PPIA). Two of these industry associations--IRMA and the LRA--took the lead in creating skill standards initiatives in their states.

This section focuses on two main issues: (1) the *challenges* regional associations face when they try to develop or assist local skill standards initiatives, and (2) the kinds of *support* regional associations are providing to local initiatives.

1. Associations Often Need Additional Resources to Support Standards Initiatives

Involvement in workforce development at the secondary level is a new role for many regional industry associations. If they are to provide leadership or strong support for local skill standards initiatives, they will need to broaden many aspects of their operations, including enhancements of their staff skills, employer networks, and funding.

While many regional industry associations are interested in labor force issues, they do not always have the staff or expertise to address them. Even the larger state industry associations tend to have few full-time staff--and no staff dedicated to working with secondary schools. Historically,

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[5] Regional industry associations are involved the Chicago and Louisiana retail programs and the printing and metalworking programs in Milwaukee, Oregon.

most regional industry associations have specialized in lobbying and providing members with information on new technologies and markets.

Most of the industry associations working with the case study sites involved outside consultants, because their organizations and staff were not configured to support skill standards initiatives. Recognizing their limited expertise, some associations chose to partner with other organizations, including postsecondary institutions and consultants, that could develop curriculum and help with employer recruitment efforts.

For several reasons, the associations needed to enhance their existing employer networks. First, while small businesses traditionally hire many of the students completing vocational programs, these employers were typically underrepresented in the membership of most regional associations. Second, some of the regional associations have few members in the niches of the industry that place the greatest value on the skills covered in the standards.[6] Third, some of the corporate staff who are most involved in the regional associations do not always have direct control over hiring of entry-level workers.[7]

Some regional industry associations were able to enhance significantly the help they provided to case study programs by securing public funding, often an attractive source of support for regional associations' skill standards efforts. Although industry associations can use member dues to support education and training initiatives, raising dues can reduce membership and make associations less useful partners for schools. State funding is often available for purposes closely related to skill

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[6]For example, the membership of the two regional industry organizations most active in supporting Oregon's metalworking skill standards initiatives include mostly mass production manufacturers rather than the many small precision machining companies that need the technical skills emphasized in the NIMS standards.

[7]For example, one corporate manager of a retail chain active in IRMA who is quite supportive of the skill standards found that she could not easily get individual store managers to recognize the READY skill certificates.

standards, such as workforce development and School-to-Work. Three of the five associations--IRMA, LRA, and OMIC--involved in the case study sites secured substantial state grants to help them support local skill standards initiatives.[8] All these grants were funded through state taxes. The Louisiana program is supported by an innovative voluntary tax on all retailers in the state.[9]

2. Associations Can Provide Leadership, Contacts, and Technical Assistance

Even regional industry associations with thin staff and a less-than-ideal membership base can make significant contributions to skill standards initiatives. Existing association staff can often provide technical or marketing assistance to schools or other organizations responsible for managing such initiatives. The staff and resources of regional associations can be enhanced to help them perform new roles, particularly when public funding is secured. The regional associations in the case study sites performed three important functions: (1) leading and mobilizing support for some of the local skill standards initiatives, (2) promoting relationships between individual employers and schools, and (3) sponsoring activities to enhance the capacity of school staff responsible for implementing the standards (see Table III.1).

Leading Local Skill Standards Initiatives. Committed regional industry associations can play leadership roles in the development of skill standards initiatives. In two of the case study sites--

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[8]IRMA secured a grant from the Illinois Department of Education to support the READY program, which is organized around the national retail standards. The LRA secured funds from the state's retail sales tax to fund its partnership with the state's Education Department. OMIC secured a grant from the Oregon Department of Economic Development to support vocational programs implementing the NIMS metalworking standards.

[9]The LRA has control over the use of a portion of the revenues collected through the state sales tax. In the past, the LRA has given these revenues back to the state to support economic development. In 1996, the LRA began to devote some of these resources to the new retail skill standards initiative implemented through high school marketing education programs.

TABLE III.1

ROLES OF LOCAL INDUSTRY ASSOCIATIONS IN LOCAL SKILL STANDARDS INITIATIVES

	Forging Employer-School Relationships			Enhancing Capacity of Schools		
	Recruit Employers	Support Third Party to Recruit Employers	Reward Schools Partnering with Employers	Pay For Curriculum/ Instructional Materials	Fund Professional Development	Provide Technical Assistance to Schools
Illinois Retail Merchants Association (IRMA)	X	X		X	X	
Louisiana Retailers Association (LRA)			X	X	X	
Oregon Metals Industry Council (OMIC)	X	X		X	X	X
Oregon Precision Metal Fabricators' Association (OPMFA)	X					X
Pacific Printing and Imaging Association (PPIA)	X					X

Louisiana and Chicago--the impetus for adopting standards came from state industry groups rather than individual schools. The LRA established a partnership with the Louisiana Education Department to integrate the national retail skill standards into all the state's high school marketing programs. IRMA outlined the design of the READY program, including a common curriculum based on the national retail standards, and then sought Chicago schools to participate. In both cases, the industry associations developed the basic design of the programs and secured public funds to implement the new initiatives.

Forging Employer-School Relationships. Public funding can enhance industry associations' staff and marketing resources and strengthen relationships between association and program staff. With public-sector support, regional associations in the case study sites perform several brokering functions:

- ***Identifying and Opening the Door to Association Members.*** In some cases, associations can help school staff gain direct access to employers interested in serving as a partner. For example, in Chicago's READY program, the vice president of IRMA generally makes the first contact with prospective employers, particularly the large department stores that can offer substantial numbers of job slots. Consultants whose salaries are funded from the state grant do most of the follow-up work, explaining the skill standards and the READY program to employers, answering their questions, and making arrangements for them to visit classes and meet with prospective student interns.

- ***Leveraging Support from Nonmembers.*** When an association's membership base is not an ideal match for a skill standards initiative, association staff can still take advantage of their network. For example, in the Milwaukee, Oregon, site, one of the metalworking associations helped recruit a very large manufacturer that had few jobs appropriate for program graduates but had a large number of small local suppliers offering relevant positions. With the encouragement of the regional association, the large firm convinced some of its smaller suppliers to become involved in the initiative.

- ***Providing Incentives to Cement Employer-School Relationships.*** The Louisiana Business Partnership has demonstrated how rewards can forge new relationships between schools and local employers. School staff can earn valuable equipment for their programs when they involve new employers. Employers interviewed during site visits remarked on the high level of energy and enthusiasm of school staff. Although these employers do not receive any rewards themselves, they are attracted by the

knowledge that their participation brings new technology into the classroom. The fact that the rewards system was developed by the industry association also enhances the program's credibility with employers.

Sponsoring Capacity-Building Activities. Large-scale implementation of skill standards is unlikely to move forward quickly until schools have access to instructional tools organized around those standards. Some of the national skill standards organizations have deliberately avoided becoming involved in curriculum development, because they sense that some state and federal policymakers would oppose such efforts, viewing them as an intrusion into the legitimate domain of state education departments and local school districts.[10] Regional industry associations in the case study sites, drawing on their local political and institutional base, have sometimes mobilized support to enhance programs' capacity to implement national standards.

The associations in Louisiana, Illinois, and Oregon were each able to secure state grants to help program staff translate the standards for use in the classroom. Rather than directly managing the development of instructional materials and activities, the associations often work with partners, including consultants and postsecondary institutions, that have more experience in education. Regional associations in the case study sites use several approaches to enhancing programs' capacity:

- ***Sponsoring Development and Dissemination of Instructional Materials.*** Industry associations sometimes helped to relieve one of the largest burdens instructors faced: developing instructional materials that are consistent with the standards. In one case, an industry association funded the development of a complete model curriculum. In Chicago, IRMA used its state funding to subcontract with a local university to create a common curriculum to be used by all high school READY teachers. Staff from Western Illinois University (WIU) took the national retail skill standards and supplemented them to form the basis of a curriculum that covered all the skills necessary for a successful retail employee. In other sites, associations have helped instructors develop and disseminate materials. In Oregon, OMIC provided a grant to the Milwaukee

[10]While few of the new skill standards organizations have invested in instructional materials, there are a few notable exceptions including the organization responsible for the health skill standards which is developing instructional materials for both elementary and secondary schools.

metalworking program to develop instructional materials organized around the national NIMS standards and then helped the school distribute these materials to other metalworking instructors in the state.

- ***Funding Professional Development Activities.*** Regional industry organizations have used public funding to enhance professional development opportunities available to instructors implementing national standards. IRMA contracted with WIU to create a special graduate-level course, *Foundations of Retailing*, to familiarize teachers with the national skill standards and the new READY curriculum based on those standards. Each summer, new READY teachers complete this course, which includes visits to employer worksites arranged by IRMA. By contrast, the professional activities developed by the LRA focus less on curriculum than on how to use applied instructional strategies that are compatible with the retail skill standards. The LRA has sent about 35 Louisiana marketing instructors to an intensive four-day summer workshop that focuses on hands-on and project-based instructional techniques.

- ***Providing Technical Assistance to School Staff.*** In some cases, industry association staff can directly assist school staff seeking to implement national standards. For example, a PPIA staff member provided a great deal of support to the printing instructors in Milwaukee, Oregon, when they decided to seek accreditation from PrintED. The PPIA staff representative helped the instructors identify curriculum areas that needed to be modified, equipment that had be upgraded, changes needed in the size and composition of the program's employer advisory committee, and ways of documenting all these changes.

The case study visits suggested that regional industry associations are not, however, filling one important gap: the associations have not launched large-scale marketing campaigns to familiarize local employers with the skill standards. While association staff sometimes discuss the attractions of skill certificates with the specific employers who are willing to partner with schools, these efforts affect relatively small numbers of firms. The lack of marketing activity may make sense at this early point in the development of the new skill standards, because very few students have received skill certificates; hence there is no real "product" to market. However, one reason that few students have sought to earn the new certificates is that both students and school staff recognize that, as yet, there is no external market for these credentials. While there is no easy solution to this "chicken and egg"

problem, the new skill certificates are unlikely to become portable until some organization promotes the national standards more aggressively at the local level.

IV. ENGAGING STUDENTS

The ultimate purpose of schools' efforts to adopt skill standards is to help students prepare for productive careers. To achieve this goal, schools must make sure that students see the value of meeting skill standards. There are at least three ways to increase program participants' motivation to meet the standards. First, by modifying student recruitment and screening procedures, schools can attract more students with interests and skills relevant to the kinds of jobs for which the standards are designed. Second, programs can reward students making progress in meeting the standards and earning skill certificates. Third, staff can help graduates enter relevant jobs and postsecondary programs. Our analysis generated the following key findings about local efforts to engage students:

KEY FINDINGS ON STUDENT PARTICIPATION

- **Changes in recruitment and screening of new students can be useful but are sometimes constrained by district procedures and equity concerns.** A few instructors have sought to change their programs recruitment and screening methods in order to attract more students with relevant interests and skills. However, several factors have limited these changes, including districts' traditional vocational education enrollment procedures, the limited staff time available for outreach activities, and concerns about closing off options for disadvantaged students.
- **New incentives are needed to engage students in new assignments and certification procedures.** Rewards contingent upon students' progress in earning a certificate can be useful to induce students to master challenging new tasks. However, some staff are understandably reluctant to tie rewards too narrowly to the standards when they are uncertain about the future value of skill certificates.
- **While programs need to do a better job of collecting information on students' outcomes after high school, the information available suggests that few graduates are entering the fields for which the standards are designed.** Employers and postsecondary schools are unlikely to focus on the new standards and certificates unless substantial numbers of graduates begin to earn certificates and apply for relevant jobs and programs.

This chapter is organized around an analysis of three main issues:

- Have programs modified their procedures for recruiting and screening applicants to attract more students with interests and abilities that match the careers for which skill standards were developed?
- In what ways have program staff sought to motivate participants to meet the standards and earn skill certificates?
- To what extent have graduates started jobs or postsecondary programs that are relevant to the skill standards?

A. RECRUITING AND SCREENING STUDENTS

Vocational programs often have difficulty attracting students with relevant interests and abilities. Students attracted to vocational classes often have vague or unrelated career goals. Some view vocational classes as a hobby, an opportunity to socialize with friends, an alternative to more stressful academic classes, or a chance to leave school early and go to work. Programs frequently rely on guidance counselors to identify and refer interested students. However, some counselors believe that vocational programs are suitable only for students with low levels of academic achievement and discourage higher-achieving students--even those with relevant interests--from participating. Because of pressure to achieve target enrollment levels and comply with school policies, instructors often have difficulty screening students.

A "mismatch" between the scope of the standards and the interests of participating students has posed a challenge to the case study programs. This mismatch reflects in part the fact that the interests of many participants are not relevant to the career area of the vocational program. In addition, the national skill standards are narrower in scope than most of the vocational programs. The standards focus primarily on specific entry-level positions: skilled machinist, press operator,

and retail associate.[1] By contrast, most of the programs are designed to prepare students for a somewhat broader range of occupations. For example, some of the metalworking classes help students prepare for careers not only in precision machining but also in welding or engineering, the printing classes prepare some students for the field of computer-generated animation, and the retail classes prepare some students for general marketing and business careers.

Program staff have two main options in creating a better match between students' interests and the standards. They can modify the program's recruitment and screening procedures to attract more students interested in the specific careers for which the standards are designed. Alternatively (or in addition), they can try to motivate the students who are potentially interested in relevant careers to meet the standards. In this section, we explore how the skill standards initiatives have affected programs' approaches to (1) recruiting students, and (2) screening applicants. In the second section of this chapter, we discuss how programs have sought to motivate participants.

1. Special Outreach Efforts Are Needed to Attract Suitable Applicants

Most programs have been unable to modify their recruitment procedures after implementing the skill standards and hence have not changed the mix of participants. Programs continue to rely on the same recruitment techniques: providing basic information to guidance staff and to younger students who visit their classroom each year.[2] While some instructors have mentioned the skill standards to both guidance staff and visiting students, programs generally do not have the resources to mount a special promotional campaign directed toward students or parents. Consequently, most

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[1]In addition, the standards are also relevant to a small number of higher-level careers, such as tool and die maker, printing estimator, and store manager.

[2]Most programs hosted annual visits from eighth or ninth graders as part of organized tours of several vocational programs. This was the main opportunity to describe the program to students who were interested in participating.

programs attract a diverse mix of students, including many with little interest in the careers for which skill certificates have been designed.

One exception to this pattern demonstrates the potential payoff from investments in outreach. From the inception of L'Anse Creuse's skill standards initiative, the metalworking instructor viewed the standards as a mechanism to address employers' concerns about the weak technical, problem-solving, and communication skills of many of the students graduating from his program.[3] As part of the skill standards initiative, the instructor sent a brochure describing the new metalworking program to all parents in the district. The letter emphasized that students participating in the metalworking program could both earn credits at Macomb Community College and secure a nationally recognized metalworking skill certificate. The instructor also invited parents to informational sessions in which he described the attractive opportunities in the precision machining industry and explained how the program would prepare students for these careers. This strategy has increased applications and expanded the number of participants who are motivated by the idea of earning a skill certificate and college credits during high school.

Outreach investments can create an opportunity to assess and screen students more carefully by gauging their commitment to prepare for relevant careers. Program staff can be selective in admitting students only if the number of applicants exceeds the number of program slots. As discussed below, some of the oversubscribed programs were able to screen students and select the most qualified applicants.

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[3]Some of these students were special-education or at-risk students who had no particular interest in machining careers but were encouraged by guidance staff to enter the metalworking program.

2. Screening Can Exclude Those with Low Interest or Skills but Raises Equity Issues

The diverse interests and low achievement levels of many of the students attracted to case study programs has impeded full implementation of the standards. At least in theory, the standards were supposed to be rigorously applied to prevent students from earning skill certificates without demonstrating all the required competencies. However, many students attracted to the program were either unwilling or unable to meet the standards. Program staff would have difficulty persuading employers to take the standards seriously unless they could attract more students willing to work hard to satisfy the standards and earn certificates.

While all the instructors were interested in excluding some students with unrelated interests or very low skills, because of budget constraints or school policies, most were unable to screen applicants. Enrollment in some programs had been running below capacity, which increased the pressure to accept all applicants. Some instructors did not have the time to screen applicants. In addition, some districts explicitly sought to accommodate low-achieving and at-risk students in vocational programs as part of a strategy to engage these students and provide them with valuable skills. Screening students for vocational programs based on their grades, attendance, or even career interests was viewed by some school staff as inconsistent with the objectives of the programs.

When programs introduced a formal application process, some of the screening occurred through self-selection. Both the Chicago retail and the L'Anse Creuse metalworking programs introduced individual assessments designed to confirm that applicants' interests or career-related aptitudes were relevant to the kinds of jobs for which the standards were designed.[4] While these assessments did not lead to the formal rejection of any applicants, many students chose not to complete the process. For example, in Chicago, only about half the applicants who filled out a brief

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[4]Chicago also screened applicants to ensure that they neither had a criminal record nor were on a national database of "dishonest employees."

application in their sophomore year completed the extensive assessment process. In L'Anse Creuse, a smaller but still significant fraction (about a quarter) of applicants screened themselves out of the program during the application process.

When instructors explicitly rejected some applicants, they usually sought to exclude those who did not appear to be interested in the careers targeted by the skill standards or capable of advancing within them. In this way, program staff solidified their relationships with employers and expanded the number of student "success stories." Both L'Anse Creuse and the Louisiana programs screened out many students based on a range of factors.[5] The L'Anse Creuse instructor focused on students' math scores, because he recognized that those with poor math skills could not progress beyond an entry-level machinist position. The Louisiana instructors focused on whether applicants had good behavior and attendance records, displayed good basic skills, and showed at least some interest in working in the retail industry.[6]

While rigorous assessment and screening can increase the match between participants and the skill standards, it can also raise equity concerns. L'Anse Creuse's new screening procedures, in conjunction with its enhanced outreach effort, led to a significant shift in the mix of participants. According to the metalworking instructor, most of the school's metalworking students now have an overall grade point average (GPA) that falls just above or just below that of the average student in their home schools. By contrast, in previous years, nearly all his students had GPAs in the lower half of their class. This outcome has raised concerns in L'Anse Creuse about closing off opportunities

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[5]L'Anse Creuse rejected about 20 percent of those completing an application, while the two Louisiana schools rejected between one-quarter and one-half of applicants.

[6]One of the Louisiana programs had a preexisting screening process; however, the instructor was able to be more selective as a result of the growth in the number of students applying to his program. In screening students, this instructor increasingly focused on students' career interests and whether they appeared to have a commitment to a career in retail or, at least, in business.

for low-performing, at-risk, and special-education students. For example, the special education counselor in the vocational center has argued that some of the excluded students could benefit from a program that gives them practical machining skills, regardless of whether they have the math and technical skills to earn skill certificates.[7]

These experiences suggest a need to balance carefully the goals of upgrading curriculum and ensuring inclusiveness. On the one hand, program staff may have difficulty establishing the credibility of skill certificates if they cannot attract more motivated students with relevant interests and proper basic skills. On the other hand, educators may legitimately object to screening procedures that limit the options available to at-risk, low-achieving students. One way to strike the balance may be to invest more in outreach to attract a larger number of students with relevant interests and skills while still providing opportunities for other students to participate. Instructors may need to continue to accept classes that are split between students who are motivated and prepared to meet the standards and those with little commitment. To ensure that all participants still have some chance of earning a skill certificate, programs can offer remedial services to some students. In addition, programs need to find ways to motivate more students to try to meet the skill standards, a topic we turn to now.

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[7]The instructor started by filling two of his three metalworking classes with somewhat higher-achieving students. These two classes, which are organized around the national NIMS metalworking standards, are filled with students who have both clearly defined interests in precision machining and good math skills. The school's third "regular manufacturing" class, which is based on the older, less-challenging curriculum, is now significantly undersubscribed even though it is designed for the at-risk and special-education students who previously represented the majority of all three classes. The instructor was unsure of the reasons for the decline in the number of lower-achieving students entering the regular manufacturing class; this decline may be related to the fact that this class is now perceived as a "lower track." The instructor hopes to eliminate this class entirely and replace it with a third class of higher-achieving students interested in NIMS certificates.

B. MOTIVATING STUDENTS TO MEET STANDARDS

Skill standards proponents expect that the new standards will reinforce students' motivation to work hard at school and acquire skills valued in the labor market. The standards themselves may heighten students' motivation if they help teachers demonstrate the value employers place on skills emphasized in the curriculum. An opportunity to earn skill certificates can engage students if they perceive that the new credentials will open the door to attractive careers.

However, during the initial stages of implementation, programs have often had difficulty motivating students to meet the skill standards. While instructors hoped that most students would work hard to meet the standards, they realized that many were not particularly interested in doing so. In a few cases, instructors felt compelled to relax the way they applied the skill standards and the criteria for issuing certificates. Thus, the rate at which students earned certificates reflects only to a limited extent the degree to which students were motivated to meet the standards (see Table IV.1). Particularly in the retail and printing programs, instructors had some discretion in whether to issue certificates to students. When instructors relaxed the criteria, they jeopardized their goal of increasing the expectations of students and employers.

Since many students were uncertain about the value of a skill certificate, some programs sought to create new incentives that could induce students to take the standards seriously and work hard to meet them. Even where instructors relaxed the criteria for issuing skill certificates, they sometimes found ways of encouraging students to master important skills.

In this section, we address two general questions:

- To what extent did students view skill standards as relevant to their future?
- In what ways have programs sought to reinforce students' motivation to meet the standards and earn certificates?

TABLE IV.1

PERCENTAGE OF STUDENTS EARNING SKILL CERTIFICATES:
CLASS OF 1997 AND CLASS OF 1998

Site/Programs[a]	Class of 1997			Class of 1998		
	Number in Class	Number Earning Certificate	Percentage Earning Certificate	Number in Class	Number Earning Certificate	Percentage Earning Certificate
Chicago, Illinois/ Retail	n.a.[b]	n.a.	n.a.	113	94	83
Louisiana/Retail[c]	65	56	86	88	0[c]	0
L'Anse Creuse, Michigan/ Metalworking	10	5	50	6	6	100
Mercer County, New Jersey/ Printing	15	14	93	12	12	100
Oakland, Michigan/ Printing	n.a.[b]	n.a.	n.a	11	5	45
Milwaukee, Oregon/Printing	30	8	27	30	4	13

[a]Oakland and Sabin Metalworking are not included, because they did not implement skill standards initiative until school year 1998-1999.

[b]The class of 1998 was the first class participating in Chicago's retail program and Oakland's printing program.

[c]The Louisiana figures are for the two schools visited: Andrew Jackson High School and Walker High School.

n.a. = not applicable.

1. Most Students Did Not Perceive the Relevance of Skill Standards to Their Future Careers

Students' motivation to meet the new benchmarks hinged largely on whether they had a clear interest in the kinds of careers for which the standards were designed. Few students expressed a great deal of interest in meeting the standards and earning a certificate. Most instructors noted that only a small fraction of their students had both voiced interest in a certificate and worked hard to earn one. Instructors typically attributed students' lack of interest in the standards to the fact that they either had undefined or irrelevant career goals. Some of the students participating in the case study focus groups indicated that they might like a certificate, but most did not believe a certificate would be valuable to them in their future careers. Many students hoped to attend a four-year college, and while some of these students had career interests that were indirectly related to the skill standards (for example, engineering or business), they perceived that their future opportunities would hinge largely on the kind of college program they entered and not on whether they earned a skill certificate during high school.

Even students with a clear commitment to the careers for which the standards were developed were uncertain about the value of a skill certificate. Some of these students were already employed in the industry and perceived that a certificate would not help them retain their current job or obtain a better position. During the early phase of implementation, programs are likely to have difficulty persuading students to work hard to acquire a certificate unless the programs either get more employers to demonstrate an interest in the new credential or create new rewards for students earning these credentials.

2. Incentives Heighten Students' Motivation, but Not Always in Ways Linked to Standards

Several programs developed strategies to reinforce students' interest in meeting skill standards. In particular, the case study programs devised three main kinds of rewards:

- ***Providing College Credit to Those Earning Skill Certificates.*** Two skill standards initiatives--the Oakland printing and L'Anse Creuse metalworking programs--forged articulation agreements with local colleges, offering college credits to students earning skill certificates during high school. The colleges participating in these articulation agreements were willing to grant credits to any student who, according to their vocational instructor, performed well in the vocational program. Both the Oakland and L'Anse Creuse instructors chose to make the college credits contingent upon students' success in earning a skill certificate.

- ***Providing Attractive Apprenticeships or Jobs to Those Making Progress.*** Some instructors were able to use attractive work-based activities as an incentive. In some cases, instructors made attractive positions explicitly contingent upon students' progress in meeting the skill standards. For example, in L'Anse Creuse, the instructor referred students to registered apprenticeship only if they had passed at least one of the skill standards exams. Moreover, he advertised this policy to incoming students to increase their drive to master the competencies covered in the skill standards exams. In other sites, work-based activities were contingent upon students' general performance in class. For example, in Chicago, students could get an internship only if they displayed a positive attitude and maintained satisfactory attendance and grades (which were only loosely related to the standards).

- ***Awarding Prizes to Those Completing Projects.*** The Louisiana Retail Association created, for both students and programs, rewards that were linked to students' successful completion of a broad range of activities, including marketing presentations, customer surveys, and participation in state and national competitions of student vocational clubs. These activities were not all directly tied to the award of skill certificates or the skill standards.[8] However, they often cultivated some of the same kinds of skills covered in the standards. Moreover, many of the activities were designed to cultivate important general skills which are not emphasized in the retail standards--such as presentation and problem-solving skills--but which are valued in a broad range of careers.

The rewards that have been most successful in focusing students' attention on the standards are those that are contingent upon students' progress in earning a skill certificate. In particular, the college credits awarded by the printing and metalworking postsecondary programs and the

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[8]In school year 1997-1998, the LBP advisory board--consisting of instructors in programs that had received the most awards in the previous year--sought to link the activities more closely with the skill standards. While they succeeded in classifying most of the activities into the same general categories as the skill standards--sales, customer service, communications/human relations, work ethics--many of the activities remained only loosely related to the specific competencies covered in the standards and checklists.

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metalworking apprenticeships were both clearly related to the skill certificates. By contrast, the retail jobs and rewards were designed to encourage students to meet general learning objectives.

While the lack of connection between some of the retail rewards and skill standards may impede the development of a portable retail skill certificate, it may not be a great loss for many students who are in retail programs but whose ambitions extend beyond entry-level retail positions. The Louisiana program staff may have been wise to make rewards contingent upon a broad range of interesting projects, some of which were only loosely related to the standards. Many (if not most) of the Louisiana students appear to be interested in careers that are not closely related to the jobs for which the standards and certificates were developed. Even many of those interested in retail jobs may benefit at least as much from projects that draw on a broad range of skills--such as developing a business plan--as they do from activities more closely linked to the standards--such as developing a display for a store window.

C. STAYING IN TOUCH WITH GRADUATES

The ultimate benefit of skill standards initiatives is to help students enter well-paying jobs or attractive postsecondary programs. Expanding recognition of skill certificates among employers and postsecondary schools is likely to hinge in part on whether students possessing these credentials pursue relevant careers. If the standards are not relevant to most students' career trajectories, educators will need to consider whether to modify the design of local programs (including student recruitment and screening procedures) or redefine the standards.

For several reasons, interpretation of the postsecondary outcome information available from the case study schools requires caution. First, some of the sites could provide only rough estimates of the fraction of graduates with particular outcomes. Second, the case study sites may not be representative of other schools currently implementing national skill standards. Third, the skill

standards implemented by sites are quite narrow in the range of occupations they cover. By contrast, some of the standards that the new voluntary skill standards partnerships are planning to develop are considerably broader, pertaining to large clusters of occupations in several related industries. Hence, it is possible that the new proposed skill standards will be more flexible and applicable to the career trajectories of a larger fraction of the students graduating from career-focused high school programs.

The rest of this chapter examines the extent to which (1) programs have access to reliable follow-up information that can provide feedback to school staff and policymakers, and (2) graduating students are entering jobs and postsecondary programs for which the standards are potentially relevant.

1. Lack of Information on Graduates' Outcomes Limits Improvement Efforts

Most of the case study sites have traditionally collected some information about graduates' career paths. Some programs are required to report some student outcomes to their districts or state. Even where schools are not required to collect any follow-up data, school staff often conduct surveys to determine whether students have opportunities to use the skills they learned in the vocational program.

Programs collect information in several ways. Many schools conduct schoolwide surveys of graduates, although occasionally a single vocational program conducts its own survey. Instructors are sometimes able to obtain firsthand information on students postsecondary outcomes when they speak with former students, their employers, or their college professors. When instructors place students in a job or program, they have the most direct and detailed information about their outcomes.

Reliable, comprehensive information on students' outcomes based on questionnaires sent to graduates is rare, and the case study sites are no exception. Most of the surveys of graduates have

very low response rates (between 10 and 40 percent), which undermine the quality of the data. While some programs achieve higher response rates among students earning skill certificates, the low response rates among other students make it very difficult to establish whether the outcomes of the two groups are different.

Program staff themselves place relatively few students in full-time positions or postsecondary programs, which further limits their ability to gauge students' outcomes immediately after high school. In only two sites (New Jersey's printing program and L'Anse Creuse's metalworking program) did instructors play a role in placing most students in some kind of job or postsecondary program. Since most of the case study schools were regional vocational centers, guidance staff in students' home schools were primarily responsible for helping students identify and apply to postsecondary programs.[9]

In order to continually improve skill standards initiatives, program staff may need to secure more detailed information on graduates' experience after high school. Staff need to learn not only whether students entered relevant jobs and programs but also how well prepared they were for these experiences. Instructors need to be sure to identify any gaps in students' skills that could lead to disenchantment with the standards among employers and postsecondary schools. To make informed judgments, staff will need not only to conduct surveys of graduates but also to speak more often with the graduates' employer supervisors and college faculty.

2. Most Graduates Appear to Be on Career Paths Not Closely Related to Standards

While the contact between schools and graduates is uneven, school staff obtained some useful clues about the extent to which students' career paths are related to the skill standards. Most schools

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[9]Even the staff involved in the retail programs that were housed in comprehensive high schools had little involvement in students' college application process.

were able to provide rough estimates--based on follow-up student surveys or instructors' judgments--of the fraction of students whose career paths immediately after high school were "related to their vocational program."[10] While the occupational scope of the vocational program is usually broader than that of the skill standards, these estimates provide a useful analytic starting point.

Just over half the graduates for whom data are available entered jobs or postsecondary programs related to their vocational career area (see Table IV.2). With the exception of the students completing the L'Anse Creuse metalworking program, the fraction of graduates in full-time jobs related to their vocational program varied between 9 and 50 percent. A comparable fraction of students were reported in postsecondary programs related to their vocational career area. (Some of these students--particularly those attending two-year community colleges--concurrently held relevant full-time jobs.) Aggregating across the eight case study programs, the "average" program reported that about 55 percent of graduates were in either a full-time job or a postsecondary program related to their vocational curriculum. This fraction is slightly higher than the rates reported in other studies of vocational programs.[11]

However, this information probably exaggerates the overall extent to which students' career paths are related to the skill standards, for two reasons. First, the students who did not respond to the two follow-up surveys (administered to the graduates of the two retail programs) were probably

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[10]In two programs, this was based on instructors' sense of students' outcomes, while in six others, the data were based on mail or telephone surveys administered to graduates within four years after high school graduation.

[11]A range of studies conducted during the 1970s and 1980s suggest that just under half of students graduating from vocational secondary programs obtain jobs in occupations related to their vocational career area (Bishop 1996). Unpublished data from the National Evaluation of School-to-Work Implementation indicates that, during the first 18 months after high school, about 42 percent of students who take a sequence of vocational courses ever work in a job in which they are able to use skills developed in a vocational class. (See Hershey et al. 1998 for information on the student sample and follow-up survey.)

TABLE IV.2

PERCENTAGE OF GRADUATES FROM CLASS OF 1998 ENTERING FULL-TIME JOBS OR POSTSECONDARY PROGRAMS RELEVANT TO THEIR VOCATIONAL CAREER AREA

Site/Program	Data Source and Sample	Percentage in Relevant Full-Time Jobs	Percentage in Relevant Postsecondary Program	Percentage in Relevant Full-Time Job or Postsecondary Program[a]
Chicago, Illinois/ Retail	Survey of 56 of the 94 graduating students who expressed some interest in retail; 26 students (46 percent) responded	23	0 to 40[b]	23 to 63
Louisiana/Retail[c]	Survey of 26 graduates; 18 students (69 percent) responded	11	6	17
L'Anse Creuse, Michigan/ Metalworking	Instructor	100	100	100
Mercer County, New Jersey/ Printing	Instructor	50	25	75
Oakland, Michigan/ Printing	Instructor	9	45	54
Oakland, Michigan/ Metalworking	Instructor	40	33	66
Milwaukee, Oregon/ Printing	Instructor	20	20	40
Milwaukee, Oregon/ Metalworking	Instructor	40	33	45
Average Across Eight Programs[d]		37	35	55

[a]Some graduates are in both a full-time job and a postsecondary program relevant to their vocational career area; hence, this column is sometimes less than the sum of the previous two.

[b]The Chicago follow-up survey did not ask whether students' postsecondary programs were relevant to the retail sector. Since about 40 percent of respondents said they were entering a two- or four-year program, the percentage entering a relevant program is at most 40.

[c]These figures are for Andrew Jackson High School.

[d]These estimates are equal to the unweighted average of the percentages for the eight programs.

less likely than respondents to be in jobs or postsecondary programs related to their vocational career area.[12] Moreover, the follow-up survey conducted by one of the sites--Chicago's READY program--was administered only to the 56 students who expressed some interest in retail jobs before graduating. Limiting the sample in this fashion presumably increased the fraction of respondents who reported that they had a relevant full-time retail job.

Second, students' career paths were more likely to relate to their broad vocational career area than to the somewhat narrower skill standards. For example, the metalworking instructors noted that they counted general college engineering programs as related to their students' vocational career area, even though these programs neither drew on many skills covered in the metalworking skill standards nor granted students any credit for earning a metalworking skill certificate.

Taking these two factors into consideration, most students' career paths probably were not closely related to the skill standards. While the available information is incomplete, it suggests that less than half the students entered jobs or programs related to the careers targeted by the skill standards.

Of course, the degree of connection between students' career paths and the skill standards is not necessarily indicative of the benefits students are reaping from a vocational program. Regardless of whether the career paths of students are closely related to either the standards or their career area, they could benefit from opportunities to clarify their career goals; enhance problem-solving,

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[12]School staff suggested that students who remained interested in their vocational career area were generally more likely to remain in touch with the schools. These students were more likely to give schools their current address and, if they received a survey in the mail, may have been more likely to complete it and return it to the school.

employability, or technical skills; and understand how academic skills can be applied in the workplace.[13]

Nonetheless, the loose fit between graduates' career paths and the skill standards may pose a challenge for those interested in developing a national market for skill certificates. If few graduates make much use of the skill certificates, then the key stakeholders (educators, employers, and students) will have less reason to be interested in these credentials. While programs may be able to motivate students to work hard by creating other complementary incentives, this approach is unlikely to sustain a market for skill certificates.

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[13]Data from the National School-to-Work Evaluation suggest that even students entering jobs and programs unrelated to their vocational career area often perceive that their vocational course work was very helpful in clarifying their goals: approximately 52 percent of students surveyed perceived that their vocational classes were "very helpful" in formulating a career goal (Hershey et al. 1998).

V. EMERGING IMPLEMENTATION ISSUES

The national skill standards movement offers an opportunity to help more high school students prepare for productive careers. The standards could be particularly helpful in improving the quality of vocational programs by guiding efforts to update curriculum and assessment, providing a means for engaging local employers, and motivating students to work harder. The experience of the case study sites suggests that standards initiatives can sometimes achieve all these objectives.

However, the long-term potential of national skill standards for reforming vocational programs remains uncertain. With the exception of the auto repair and a few other older standards, few national skill standards have been implemented on a large scale. Many more schools are interested in skill standards but have not yet determined how to use them to upgrade their programs. Adding to the uncertainty is the new NSSB framework that encourages the new voluntary partnerships to develop broad standards, each of which will apply to a wide range of related occupations and industries. This proposal is consistent with the interest of some educators in broadening the scope of vocational programs so that students are exposed to a larger array of industries and occupations. However, implementing this vision may require substantial changes in the structure and content of vocational curricula.

Notwithstanding all these sources of uncertainty, the experience of the case study sites can help identify and clarify some emerging implementation questions. The resolution of these questions will affect the success and direction of future implementation efforts. In particular, the findings from this study point to the importance of four key questions:

- Can the national skill standards initiatives create a market for new, portable skill certificates?

- Regardless of whether a market emerges for skill certificates, can skill standards contribute to improvements in vocational programs?
- Can skill standards enhance the actual and perceived quality of vocational programs without excluding the lowest-achieving students?
- What kinds of resources are needed to organize programs around skill standards?

A. CAN PROGRAMS CREATE A MARKET FOR NEW SKILL CERTIFICATES?

Efforts to create a market for portable skill certificates initially confront a "Catch-22" as a result of interdependent supply and demand constraints. Education and training institutions will have difficulty substantially increasing the supply of graduates who work hard to meet national standards and earn certificates unless local employers and postsecondary institutions clearly demonstrate that they value the new credentials. Conversely, most employers and postsecondary institutions will not devote much time to familiarizing themselves with skill certificates--not to mention supporting high school programs that adopt standards--until there is a supply of graduates who hold the credentials and appear to have potential.

To overcome this Catch-22 and create a market for certificates, skill standards initiatives will need to secure complementary commitments that incrementally develop both the supply of and the demand for the credentials. In cultivating the demand side of the market, skill standards organizations must implement focused outreach campaigns targeted to employers and postsecondary institutions that are likely to place the greatest value on the skills the standards cover. More local employers will need to support programs that implement skill standards and to offer high-quality internships to students who have made progress earning certificates. Ideally, community colleges will forge new articulation agreements that offer college credits to those with skill certificates.

Growth in the demand for certificates will occur only if there is concurrent progress in expanding the supply of productive high school graduates with these credentials. Schools will have

to modify curricula, re-equip programs, provide new kinds of feedback to students, and accumulate evidence of students' competencies. Students will need to work hard to acquire skills, earn certificates, and secure positions where they can use those credentials.

Many of the institutional investments must involve not only national skill standards organizations but also educators and regional associations at the local level. While national trade associations will no doubt need to promote the standards more aggressively, local schools and regional trade associations will have to help inform local employers, particularly those who are already working with vocational programs. Similarly, investments in curriculum need to be made not only at the national and state levels (developing curriculum models and instructional materials) but also the local level (helping instructors become familiar with and adapt these models).

The initiative of individual school staff can sometimes make a difference in dealing with both supply and demand constraints. For example, the efforts of the L'Anse Creuse instructor appear to have helped persuade both students and employers to take the standards seriously. The instructor developed the supply side of the market by investing in student recruitment and screening, reorganizing his curriculum around the standards, and mobilizing substantial resources to purchase new equipment. These achievements were due in part to his success in simultaneously cultivating a visible demand for the certificates: employers who offered attractive apprenticeships and colleges that granted credit to students who passed the challenging NIMS certification tests. Initiating and coordinating these reforms was not easy. The instructor remarked that, before any students, school staff, or employers were aware of the NIMS metalworking standards, he perceived that he was single-handedly trying to push a large boulder up a steep hill. However, as stakeholders began to respect the standards, the reforms began to pick up momentum, with each group's commitments propelling others to take the standards more seriously and act accordingly.

The L'Anse Creuse experience may be hard to reproduce, however. Apart from the leadership of the instructor, L'Anse Creuse benefited from a number of favorable local conditions, including a strong demand for machinists, a local culture supportive of manufacturing careers, and a strong postsecondary partner willing to make college credits contingent upon students' success in meeting the skill standards. Even in this supportive environment, the program remains fairly small (graduating only 7 to 10 students each year). In a less receptive context, program staff are likely to face greater challenges in recruiting interested students, employers, and postsecondary partners. Nonetheless, the fate of skill certificates is likely to hinge on efforts to replicate successful initiatives like the one in L'Anse Creuse.

While the experience of the case study sites provides a few clues about the hurdles facing the new voluntary skill standards partnerships, cultivating a market for the much broader certificates proposed by the NSSB is also likely to be challenging. The proposed new standards and certificates are intended to apply to a much larger range of industries and occupations. While these standards are compatible with the broad career cluster pathways advocated by some educators, they may require much greater changes in school programs and pose new issues in recruiting employers and students. Reorganizing vocational curricula around expansive career clusters will be a costly enterprise and is likely to be perceived as threatening to some school staff.[1] Programs may have difficulty engaging local employers if only a small portion of the curriculum focuses on their market niche. Motivating students to master tasks related to a broad set of related careers could also prove challenging if students have difficulty seeing how these tasks pertain to their specific career interests.

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[1]For an analysis of challenges implementing career majors, see Hershey et al. (1998).

B. CAN STANDARDS PROMPT OTHER IMPROVEMENTS IN PROGRAMS?

Even if a thriving market for skill certificates fails to emerge, national skill standards may lead to other significant improvements in vocational and other career-focused high school programs. In particular, the experience of case study sites suggests that skill standards initiatives can make three kinds of contributions that are not necessarily contingent upon widespread acceptance of skill certificates:[2]

- ***Developing and Disseminating Instructional Materials.*** The standards can provide the conceptual framework and external support needed to develop new instructional tools. Some industry associations and schools are developing useful instructional materials organized around the standards. Some of the regional trade associations have purchased new curriculum models and disseminated instructional materials to other schools within their regions. National voluntary partnerships may be able to disseminate these materials more widely and support related professional development activities.

- ***Clarifying the Basis for High School-College Articulation Agreements.*** One of the factors that has slowed the development of coherent career pathways that bridge secondary and postsecondary institutions is the dearth of standard guidelines for curriculum and student assessment.[3] National skill standards can help link secondary and postsecondary programs by developing modular standards that distinguish which competencies could be covered in high school and college. The NIMS Level 1, 2, and

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[2]While some researchers suggest that skill standards could generate other specific benefits, the case study sites did not provide much relevant information about the feasibility of these positive developments. For example, Wills (1997) suggests that skill standards may enhance the career guidance students receive regarding the range of careers available and how to prepare for careers. In addition, some of the new skill standards may prompt schools to reorganize vocational and other high school programs around broad career clusters that expose students to a wider range of jobs, allowing them to make informed career choices and develop broadly applicable skills.

[3]The federal Tech-Prep initiative has supported local efforts to develop articulation agreements that provide students in career-focused programs with an opportunity to earn college credit during high school. However, most local Tech-Prep programs have had to develop their own framework for deciding which material should be covered in the high school program and on what basis college faculty will determine whether students are entitled to college credit (for example, based on their high school grades, the high school instructors' approval, or tests administered during either high school or college).

3 metalworking standards are helpful in this regard because they provide the basis for hierarchical certification exams and district high school and college curricula.[4]

- ***Increasing Employer Support and Quality of Workplace Activities.*** Many career-focused high school programs seek to secure support from local employers. Skill standards initiatives can help win this support by enhancing programs' credibility and engaging regional trade associations. Some efforts to reorganize curriculum around standards have succeeded in improving employers' perceptions of vocational programs and students. In addition, the leadership of state-level skill standards groups has helped schools reach out to local employers. In this fashion, some case study programs have persuaded employers to provide feedback on curriculum, financing for equipment, and high-quality work-based activities.

Meeting these objectives does not require a large-scale coordinated national effort but does depend on some new investments. In contrast to the goal of creating portable skill certificates, progress on these dimensions does not hinge on simultaneous large commitments from all the key stakeholders: schools, employers, postsecondary institutions, and students. However, the achievement of these objectives will require substantial resources, an issue explored further in Section D.

C. WILL SKILL STANDARDS EXCLUDE SOME LOW ACHIEVERS?

Skill standards can improve both the actual and the perceived quality of vocational programs by increasing the number of participants who acquire a specific mix of skills. This goal can be achieved in two (not mutually exclusive) ways. First, programs can attract more students with interests and skills that are relevant to the standards. Second, programs can use the standards and the opportunity to earn a certificate to induce students to work harder.

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[4]High school programs typically prepare students to earn a "Level 1" certificate, while a few community college programs are preparing students for the "Level 2" and "Level 3" certification exams.

Some local vocational reform efforts that have screened out students are widely viewed as successful models. Thus, for example, Craftsmanship 2000, a School-to-Work initiative in Tulsa, Oklahoma, screened students carefully before admitting them to a new high school metalworking program closely linked with a two-year program at a local community college. This initiative succeeded in substantially enhancing the preexisting vocational curriculum, creating challenging work-based activities for students, and placing many graduates in high-paying jobs. Similarly, the success of the case study metalworking program in L'Anse Creuse in changing employers' perceptions of the machining program was due in part to the exclusion of students with low attendance and poor math grades. Some educators may overestimate the effects of these reforms on students and attribute the positive outcomes of graduates to the improvements in curriculum and employer relationships rather than to the high-achieving students attracted to the program (including those whose outcomes may have been impressive even had they not participated).

If programs rely entirely on the incentive effects of standards to increase student achievement, they are likely to be perceived as less successful by both employers and postsecondary schools, which will make it harder to secure external support for reform efforts. Students' average outcomes may not change visibly or quickly, which could lead observers to conclude that the standards had little effect. Unless there are many "success stories," support for standards could wane. These concerns are unlikely to be lessened by the current efforts to broaden skill standards.

D. WHAT RESOURCES ARE NEEDED?

The resource constraints facing skill standards initiatives highlight emerging bottlenecks that could impede future implementation efforts. While a few states are supporting demonstrations of national skill standards implementation, the resources committed to these efforts remain small. Even though federal School-to-Work funding is available to support implementation of skill standards,

they have not been a priority for either state or local School-to-Work initiatives (Hershey et al. 1998).

The experiences of the case study sites suggest that resources are needed at the local level for three kinds of purposes, which correspond with the three stakeholder groups examined in this study: (1) revamping curricula and facilities; (2) informing employers and restructuring work-based activities; and (3) recruiting, assessing, and motivating students.

Revamping Curricula and Facilities. While national skill standards have prompted a few industry associations to support curriculum development and dissemination, this is still fairly rare. In some career areas--such as printing and metalworking--no model curriculum exists for skill standards. Instructors have to respond to the standards individually, even though they rarely have any extra planning time. In part because few schools have implemented standards so far, instructors have few networking opportunities to share strategies on how to adapt assignments and projects to emphasize the targeted skills and engage students. Some of the case study schools had no resources available to re-equip programs, which constrained students' ability to practice tasks included in the standards. To summarize, the experience of case study sites suggests that local skill standards initiatives need three kinds of resources:

- Model curricula, instructional materials, and professional development opportunities that can provide ideas on how to implement the standards
- Planning grants that can cover the time needed to develop or adapt lesson plans and student projects
- Funding to replace obsolete or worn-out equipment

Informing Employers and Developing Internships. The task of promoting standards to employers has barely begun. Even those firms working with the case study programs are often

unfamiliar with the standards, which suggests that many, if not most, employers are not aware of them. Since co-op supervisors are also often unfamiliar with the standards, few co-op positions are structured to allow students to practice relevant tasks.

While national trade association staff can help with promotion, they are probably too remote to coordinate local marketing campaigns. Regional trade associations have demonstrated their capacity to help with employer outreach; however, many of these organizations will need to enhance their employer networks and staff in order to make a substantial contribution. Some marketing will naturally fall to schools. Co-op supervisors may be able to help reach out to employers, but they will need to be given the time and training to become familiar with the standards. Thus, the resource needs include:

- Funding to enhance the staff capacity and networks of national and regional trade associations
- School staff who have time and expertise to promote the standards among local employers

Recruiting, Assessing, and Motivating Students. Many students entering vocational programs have little interest in the careers for which the program is designed, much less the idea of meeting national skill standards. This is because students often take vocational courses for casual reasons and because the guidance staff responsible for helping students select classes have large caseloads. Even students whose career interests are compatible with the standards often need to be motivated to master key competencies. Thus, skill standards initiatives could benefit from:

- Resources to advertise skill standards programs to larger numbers of students and parents; support from guidance staff in identifying students who have both an interest in and an aptitude for the kinds of careers targeted by skill standards

- Funding for rewards to motivate students who make progress in mastering key competencies
- Assistance in forging articulation agreements with postsecondary institutions that grant college credits to students meeting skill standards
- Staff resources to track students' outcomes and secure feedback from employers, students, and postsecondary institutions on the gaps in graduates' skills

National skill standards are unlikely to have much effect on the way high schools prepare students for careers unless both public- and private-sector institutions invest in local skill standards initiatives. Support from employers and trade associations will probably grow as more firms become aware of the standards. However, the public sector--including education and workforce development agencies--will probably need to make substantial contributions in order to take full advantage of the standards and the enhanced career opportunities they offer to students.

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APPENDIX A

SITE PROFILES

CHALMETTE AND WALKER, LOUISIANA, PROFILE
STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

Schools/Location:	Andrew Jackson High School (AJHS), Chalmette, Louisiana; Walker High School (WHS), Walker, Louisiana/57 high schools in Louisiana
Skill Standards Adopted:	Retail: National Retail Federation (NRF)
Key Partners:	Louisiana Business Partnership (LBP)
Students:	A total of 68 students (at AJHS and WHS) in 12th grade in school year 1997-1998
Contacts:	Pauline Perez, LBP Paul Grethel, Marketing Instructor (AJHS) Debbie Wilson, Marketing Instructor (WHS)

INITIATING IMPLEMENTATION EFFORT

The impetus for the skill standards initiative in Louisiana came from the Louisiana Retailers Association (LRA). Retailers in Louisiana wanted to upgrade the quality of high school marketing programs to attract students to these programs and enhance the skills of participants. The LRA secured funding from vendors' compensation revenues shared by the retail community with the Louisiana Department of Economic Development (DED). As a workforce development project, the DED entered into a cooperative endeavor with the Louisiana Department of Education and the LRA to fund the Louisiana Business Partnership's (LBP's) goal of improving marketing programs by implementing the national retail skill standards, increasing employer involvement, and enhancing technology in marketing classrooms. Currently, 57 Louisiana high schools participate in the program, including the two schools visited for this study--Andrew Jackson High School (AJHS) and Walker High School (WHS).

To motivate program participants, the LBP instituted an incentive system in which those engaging in approved activities can earn rewards in the form of specific technological equipment, including Pentium II computers and educational software. Under this system, students, teachers, school administrators, and employers all can earn points that translate into technology for the classroom. While some activities encouraged by the incentive system are directly related to the national skill standards, others focus on additional LPB goals and are only indirectly tied to the standards. Most of the rewards are in the form of technology for the marketing classrooms, but individual students and school staff can also earn discounts of up to 80 percent for travel to Distributive Education Clubs of America (DECA) competitions and other marketing class trips.

The marketing instructors at AJHS and WHS approve of using the national standards, since they are what employers want. However, other aspects of the program are at least as important as the standards to marketing instructors. Both instructors found the professional development component extremely useful and consider the incentive system an effective motivator for most participants.

Involvement in the LBP led to changes in several features of the schools' marketing programs. In particular, the LBP programs (1) modified their curriculum and assessment methods; (2) engaged employer partners in the educational process, including the skill standards implementation effort; and (3) motivated students to excel in marketing class activities.

CHANGING CURRICULUM AND STUDENT ASSESSMENT

Instructors participating in the LBP had to modify their marketing curriculum and assessment methods to cover all of the national skill standards with the appropriate level of depth. In implementing the standards, the instructors made the following changes:

- Modified curriculum, assignments, and teaching methods
- Adopted skill standards checklists
- Piloted standardized tests

Modifying Curriculum and Student Assignments. To cover all of the skills in the NRF standards, instructors had to make several changes in their curriculum. Certain topics (such as inventory) that had not been included in the class before the adoption of the standards were added to the curriculum. Other topics (such as customer service and protection of company assets) that had always been taught now receive more attention. The marketing class now also places more emphasis on math and English skills through projects.

The instructors at both schools adopted hands-on teaching methods, along with the skill standards. More of the marketing curriculum is organized around projects, rather than being lecture-based, and there are few tests. The teacher at AJHS no longer teaches from a textbook (although books are still used as a resource), and employers are invited into the classroom. The curriculum at both schools now involves more applied methods, teamwork, role-playing, games, and projects.

The LBP has affected teaching methods both through professional development workshops and by encouraging teachers across the state to communicate with each other. Teachers meet and share ideas at and between in-services and workshops. The LBP sent about 35 marketing teachers to an intensive four-day hands-on summer workshop on teaching techniques that was not designed specifically around the skill standards but that did focus on entrepreneurship. The LBP has also sponsored professional development workshops to help teachers integrate technology into their classrooms.

The LBP's incentive system has reinforced the changes in students' activities and assignments. Students and staff are more interested in the types of projects for which they can earn points in the incentive system. Some activities included, such as developing a selling role-play to evaluate customer needs, are directly related to the national skill standards. Other activities, such as attending DECA meetings, address other LPB goals and are not tied directly to the standards.

Students are also using computers more in both marketing programs, including software that will make their projects easier. The instructor at AJHS taught the class to use PowerPoint this year and will add word processing and spreadsheet programs at the beginning of next year. The instructor at WHS said that the class decides what software to use for their school-based business, purchases the software with their profits, installs it themselves on the class's computers, and learns to use it.

Adopting Skills Checklists. The LBP created a skill standards checklist based on the NRF skill standards to be completed for each student. In creating the checklist, the LBP made some slight modifications to the national skill standards created by the NRF, but only in the wording of a few items. The checklists have one column to be completed by teachers for skills demonstrated at school and one to be completed by employers for skills demonstrated at work. Satisfactory completion of both the employer and teacher portions of the checklist is a necessary criterion for determining whether a student receives a skill certificate. The teachers do not use the checklists to determine students' grades, however.

Piloting Standardized Tests. LBP staff are searching for a national standardized test, to provide a consistent assessment of students skills. In the future, skill certificates will be issued to students who pass the test in addition to completing both the employer and teacher portions of the checklist. Since Louisiana is ahead of most other states in implementing the retail skill standards, the NRF has asked the LBP to pilot several tests for eventual use nationwide. The LBP has investigated three tests so far but has not yet found one that adequately assesses students' skills.

INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

The LBP considers employers to be one of the essential partners in marketing programs. Local employers are expected to actively participate in the LBP marketing programs, and the LBP engages them in the educational process by:

- Changing work-based assessment and training, particularly by requiring employers to complete a skill standards checklist for each student they employ
- Encouraging employers to become more involved with students and school staff by including employer activities in the LBP incentive system

Changing Workplace Assessment and Training. The primary role of local employers is to provide jobs for students and to complete skill standards checklists for each student they employ. The marketing instructors explain the skill standards checklist to each new employer at the beginning of the year. Employers typically complete students' checklists every grading period (nine weeks), in addition to the regular evaluation form that is used for grading purposes.

While some employers view the checklists as useful tools, others have difficulty completing them. The employers interviewed during case study site visits agreed that the standards generally included the appropriate skills for entry-level employees. Some employers said that the checklists

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help them understand what students are learning at school and highlight their training needs. However, some employers are too busy to complete the checklists and other requisite paperwork or complain that some areas of the checklist are not relevant to their workplaces.

Besides the changes in students' workplace assessment prompted by use of skill standards checklists, the quality of students' co-op jobs have improved in many cases. Instructors have convinced some employers to provide their marketing students with job rotations or to allow them to hold positions that normally have age restrictions.

Increased Employer Participation in Students' Education. The LBP encourages employers to participate in other ways, besides simply offering traditional co-op jobs for marketing students. Employers now play a role in the classroom as well as offering higher-quality work-based learning experiences. Employers are more involved with both students and marketing teachers than they were before the LBP initiative. Employers visit schools, speak to marketing classes on various topics, and participate in other class activities. They are also encouraged to take an interest in the education of their student employees by talking to students about school and their career goals. Employers have also provided job shadowing opportunities for school staff.

Instructors' energy, students' motivation, and the LBP's incentives system encourage employers to play a larger role in marketing programs. Employers can earn points for participating in many types of interactions with their student employees and with school staff, including the activities described above. The rewards that local employers earn are for the marketing classrooms, rather than the businesses themselves, but employers like having the ability to help bring technology into the classrooms.

ATTRACTING PARTICIPANTS AND HELPING THEM ENTER THE INDUSTRY

The LBP was formed to better prepare Louisiana students for successful careers in the retail industry. The modifications to marketing programs in Louisiana since the implementation of skill standards include:

- Increasing the numbers and improving the quality of students in Louisiana's marketing programs
- Motivating marketing students with the LBP incentive system
- Continuing to find new ways to certify student skills

Attracting More and Better Prepared Students to Marketing Programs. Changing the number and type of students in marketing programs has not been a major focus of the LBP, and recruitment and screening of students is left entirely to the individual schools. Still, schools have

experienced growth in the number and quality of students in their marketing programs.[1] These improvements were accomplished by enhancing the screening processes and the image of the programs.

Recruitment is largely by word of mouth, as students in marketing classes tell other students about the programs, either as part of a planned recruitment process or informally. One instructor said that quality jobs are the primary attraction of her marketing program. The incentive system also helps to attract some students to the marketing programs; students are aware of the trips and consider them attractive rewards for the hard work they will put into the program. The programs are still planning other publicity efforts to complement the word-of-mouth recruitment.

The instructors at AJHS and WHS both have application processes for their marketing programs, although these procedures were in place before the skill standards at AJHS. The instructors look at students' attendance, discipline records, grade point average, and teacher recommendations. At AJHS, students complete an application that includes a question about the student's career interests and current classes and requires the signature of both the student and a parent. The growth in the size of the applicant pool has allowed instructors to be more selective.

Motivating Students. The incentive system is an effective motivator for all participants in the LBP, and students are no exception. All of the students participating in case study focus groups mentioned the points and rewards as one of the best things about the program. Many said they worked hard for the points, both in and out of class. They did not mind that the rewards they earned (except for travel subsidies) would benefit the next year's class rather than their own.[2]

Employers feel that students in the marketing program are more responsible than other students, seem to care about their work, want more than just a part-time job, and know what is expected. Students at WHS said that the program had taught them what was involved in operating a business, how difficult it was, and that they could do it. It built their confidence and increased their sense of responsibility.

Seeking Ways to Certify Student Skills. Originally, student certification was based solely on completion of the skill standards checklists. In the first year of the LBP, the majority of students participating in the LBP marketing program earned certificates of completion authorized by the LBP and approved by the LRA. At both AJHS and WHS, about three-quarters of the students graduating from the marketing classes in 1997 received certificates. These certificates validate the students' study of the national skill standards. The LBP does not refer to them as "skill certificates," reserving that term for national certificates they expect will be authorized by the National Skill Standards

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[1]In at least one school, the marketing program grew sufficiently since the implementation of skill standards to allow the instructor both to be more selective and to expand to two classes. In another school, both the number and quality of students rose between the first two years of the program, although the number of applicants declined before the third year due to new pressures for college-bound students to take other courses.

[2]Technology earned under the LBP incentive system is delivered to classrooms toward the end of each school year, when overall achievement is measured.

Board (NSSB). The NRF is currently working with the NSSB to identify and approve national tests that measure retail skills levels.

Although a national test has not yet been approved, the LBP is seeking to include a standardized assessment test as an additional state certification criterion. To receive a certificate, future marketing students must both successfully complete skills checklists and pass an assessment test. No standardized test has yet been selected, however. The partnership has examined several tests but has had difficulty finding one that adequately assesses students' attainment of the standards and valuable skills. In 1998, no students graduating from the marketing programs in Louisiana received certificates of completion from the LBP because of the LBP's concerns that the test administered that year did not adequately measure retail skill levels.

CHICAGO, ILLINOIS, PROFILE
STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

Schools/Location:	13 high schools in Chicago, Illinois, metropolitan area
Schools Visited:	Dunbar Career Academy, Harper High School, and Jones Metropolitan High School
Skill Standards Adopted:	Retail: National Retail Federation (NRF)
Key Partners:	Illinois Retail Merchants Association (IRMA), Chicago Public Schools (CPS)
Students:	About 132 11th-grade students participated in the Retail and Education Alliance for Development of Youth (READY) program in school year 1996-1997. Over 400 students (314 11th graders and 113 12th graders) participated in the READY program in school year 1997-1998.
Contacts:	Clare O'Donnell, Target Group Gary Rejebian, Vice President Marketing and Communications, IRMA Joe Cotey, READY teacher, Harper High School

INITIATING IMPLEMENTATION EFFORT

The retail industry suffers from high turnover, particularly at the entry level, in part because retail jobs are often perceived as dead-end jobs. Retailers in Illinois wanted a way to identify students with an interest in retail and help them recognize and take advantage of the opportunities available in the industry. The Illinois Retail Merchants Association (IRMA) took the lead in creating the Retail and Education Alliance for Development of Youth (READY), which combines the national retail skill standards with employability training and internships. Retailers hope that the READY program will help prepare students for work and counter the perception of many students that the retail industry offers only dead-end jobs, not careers.

Besides increasing the number of students interested in retail careers, the READY program is targeted to address issues of workforce quality. Retailers working with the program agree that the national skill standards created by the National Retail Federation (NRF) are valuable. IRMA staff took these standards and supplemented them to form the basis of a curriculum, created by Western Illinois University, that covers all the skills necessary for a successful retail employee. The program is also upgrading teachers' skills through a graduate course for READY teachers.

The state of Illinois has actively supported READY because it views the program as a mechanism to enhance students' experience and preparation for the world of work. IRMA lobbied the governor of Illinois to make state discretionary funding available for READY, and the state awarded a grant to the Target Group (a consulting group), which in turn contracted with IRMA to provide guidance and recruit local employers. The initial state grant of $600,000 was used for curriculum development and program implementation in spring 1997 in five pilot schools: Dunbar, Harper, Jones, Richards, and Bogan. READY received another state grant to continue the program

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and to expand to involve more than 400 students at 12 city schools plus one suburban school that serves wards of the state. In its third year, the program receives funds from both the board of education for the Chicago Public Schools (CPS) and a further state grant. The CPS intends to continue funding READY in future years, but some hope that the retail industry might pay for the program eventually.

READY classes are different from the marketing programs that preceded (and, in some cases, continue to operate alongside) them in several ways. In particular, (1) READY teachers use entirely new curriculum materials that were created based on the national skill standards, (2) READY students have summer internships and mentorships with employers recruited by IRMA, and (3) the READY program's screening efforts may change the mix of students participating.

CHANGING CURRICULUM AND STUDENT ASSESSMENT

The READY program developed a single curriculum for all the READY teachers to use, rather than leaving each teacher to incorporate the standards into existing marketing classes. Two postsecondary partners (Western Illinois University and Governor's State University) were hired, one to create this common curriculum, based primarily on the national skill standards, and the other to train teachers in how to use it. To ensure successful and consistent implementation of the standards, READY directed the universities to:

- Develop a high school curriculum from the national retail skill standards
- Add units on basic skills and workplace readiness to the curriculum
- Create a graduate-level course for READY instructors

Curriculum Designed Around Skill Standards. The 600-page curriculum developed by Western Illinois University includes lesson plans, terminology, content, activities, evaluative materials, and references. The curriculum consists of two volumes, one that covers the second semester of the junior year and another that covers the first semester of the senior year.[1]

The READY curriculum is grounded in the national skill standards, which are covered in six of the nine modules. Teachers feel that the new curriculum is driven by what retailers want, and they think that is important. They also said that the READY curriculum is well written and more in-depth than the prior marketing curriculum.

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[1]Students graduate from READY in the middle of their senior year, one semester before high school graduation. During the second semester of their senior year, READY students focus on building a portfolio.

The READY curriculum is comprehensive enough to provide teachers with all the materials they need and also allow some flexibility. Some teachers do not even use textbooks, except for reference, although the READY curriculum does recommend certain texts to be used with it. The READY curriculum is too extensive for most teachers to use all of the materials in the allotted class time, so teachers can choose which activities to use in their class.

Although the READY curriculum is entirely new, teachers have found that the topics covered by the skill standards do not differ greatly from those included in regular marketing classes. One major difference teachers noted is that the READY curriculum focuses on retail, which is only one part of other marketing classes. There may be a bias against finding other curriculum differences, however. Schools were selected for participation in the first year of READY in part because they had existing classes with compatible curricula over which the new READY curriculum could be laid. Therefore, schools joining READY in later years may see more differences between their old curriculum and the READY curriculum.

The READY curriculum contains role-playing, hands-on activities, and projects. For example, one teacher said that he had just explained inventory to his marketing classes before, but his READY students are actually doing a thorough inventory of the school-based business. Students demonstrate topics to the rest of the class through skits, followed by questions from their teacher. Another teacher told me about projects (such as displays) included in the READY curriculum. READY students also need to use computers more than previous classes did (for example, to create resumes).

Units on Basic Skills and Workplace Readiness. Besides the six modules that correspond directly to the national standards, the READY curriculum includes three additional modules, covering Employability Skills, Performing Foundation Skills (communication, reading, writing, listening, and mathematics), and Performing Clerical-Related Activities. These modules are designed to prepare students for internships during the summer between their junior and senior years of high school. Teachers said that the inclusion of these work-readiness topics, which are not part of the NRF skill standards, is one of the major differences between the READY curriculum and regular marketing curriculum.

Graduate-Level Course for Instructors. Professional development is another emphasis of READY, so the program may have had some impact on the teaching methods used. A graduate-level course, *Foundations of Retailing*, was created by Governor's State University after the student curriculum was developed, and all READY instructors attend the in-service course to learn how to teach the new curriculum. The course familiarizes teachers with the READY curriculum and a variety of teaching methods, such as role-playing, cooperative learning, and hands-on experiences. The graduate course also involves site visits to employers, and employers offer one-day job shadowing opportunities for READY teachers.

INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

IRMA and READY staff recruited a new set of local employers to participate in the READY program, instead of relying on employers that had worked with schools in the past. Employers are recruited at the corporate level, primarily from IRMA's members or employers involved in

developing the national skill standards. Most of the employers recruited are large (often national) chains, including department stores, clothing stores, discount stores, groceries, and pharmacies. These employers were targeted because of their ties to IRMA or skill standards and because their size might make it easier for them to provide job rotations and mentors. Their roles in the READY program include:

- Providing paid internships and mentors for READY students
- Serving as workplace mentors for READY students
- Visiting READY classrooms regularly

Internships. Paid summer internships are one of the most important components of the READY program. These internships begin during the summer between the junior and senior years of high school and usually continue through the fall semester or even after high school graduation. All READY students are expected to complete internships with READY employers, and READY staff help arrange interviews.

The internships provided by READY may be more meaningful than the jobs students might otherwise obtain. READY employers are committed to the program and familiar with the skill standards and curriculum the students are being taught in class. In many cases, employers have visited the classes to describe their workplaces, and teachers have had job shadows with READY employers. Some treat READY students differently than other employees and may rotate students through different jobs in their internship. In addition, READY employers, recruited by IRMA, may be of a higher quality than some that individual marketing instructors could recruit. For example, some regular marketing students at one school participating in the program have fast-food jobs, while READY students have positions considered to be higher quality (such as those at upscale department stores). READY internships also provide a fairly lengthy workplace experience.

Mentorships. Each READY student is supposed to be assigned an individual workplace mentor who is to meet with the student once a week. READY created a mentor manual to help mentors understand their role. One employer said that he and other managers have regular weekly meetings with READY students to talk about their progress, experiences, and supervisors. Another employer said that, besides providing moral support, the main role of the mentor was to impart workplace ethics to the student.

Many students' mentorships did not work out in the first year because of late assignments, however. READY staff recognize this problem, and efforts were made to correct it for the second year. Still, more group mentoring than individual mentoring occurred at the retail sites. To supplement the retailers' efforts, READY hired site facilitators who acted as mentors for students, contacted parents, and collected evaluations from employers on students' employability skills.

Visits to Schools. Employers also come into READY classrooms to teach students about interviewing and other topics related to the curriculum. In addition, employers have expanded

contacts with the marketing teachers. During the first year, employers had systematic contact with teachers who checked in on their students' employers once a week during their summer internships (and less frequently during the school year).

ATTRACTING PARTICIPANTS AND HELPING THEM ENTER THE INDUSTRY

The READY program is designed to attract interested students to the retail industry and to give them the skills necessary to develop successful careers in retail. Although little information on students' postsecondary outcomes is available, those involved with the program consider it a success. The READY program provides students with meaningful workplace experiences in the retail industry, and several other program features are intended to contribute to changes in READY students' performance:

- Screening efforts designed to improve the quality of students in the READY marketing programs
- Awarding skill certificates for successful completion of the program to READY students
- Offering college scholarships for READY students who remain in the retail industry

Screening Students. The READY program implemented an extensive screening process for applicants that may affect the types of students enrolled in the program. Students complete a lengthy application process, including two types of screens, before being admitted to READY. First, the Employers Mutual Association (EMA) performs a background check that retailers routinely use before hiring a new employee. This screening includes both a criminal record check and a cross-reference against a national data pool for instances of dishonesty. This screening is performed at the beginning of the program to prevent the possibility that a student would complete the first semester and then be unable to get a READY job. The second screening activity is the Employee Potential Profile (EPP). This includes a one-on-one personal capability inventory, administered by a trained counselor, which is then scored and shared with the student immediately and with teachers later. The entire process takes a few hours. The purpose of this screening is to identify students with the capabilities and interest necessary for success in the retail industry.

Not many students are screened out by these methods, however. Target Group staff report that only one student was denied admittance to the program due to failing the EMA screen, and no students have been prevented from entering READY because of the EPP. Students who want to participate in READY are given a chance to overcome an unfavorable EPP during the first semester of the program.

The screening process itself, however, may induce some self-selection among students by deterring uncommitted applicants. Students who are less motivated in general or less interested in the retail industry and the READY program are probably less likely to complete the extensive

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screening process. As an indicator of the magnitude of this self-screening, only about half of the students who expressed an initial interest in READY actually completed the screening.

Student Certification. The majority of students participating in the READY program earn skill certificates. Of the 132 students who entered the program as juniors in the spring 1997 semester, 94 successfully completed the program and received certificates.

The limited data available on the postsecondary outcomes of READY students suggest that few are making use of skill certificates, however. The Target Group attempted to track the 94 graduates who earned READY certificates in 1998. Of the 73 students who responded, 25 had obtained a full-time job related to the retail program. Although 20 students are pursuing postsecondary degrees, it is not known whether they are enrolled in programs related to the retail industry.

Scholarships. READY is currently developing a scholarship program for READY students, using funds from the National Retail Institute, Crate & Barrel, and (potentially) other sources. All READY graduates who continue to work in retail jobs (either full- or part-time) after graduating from high school will be eligible to apply for the funds. The scholarship program could be used to attract and motivate students in the future, although no such efforts have been made yet.

L'ANSE CREUSE, MICHIGAN, PROFILE
STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

Location:	Clinton Township, Macomb County, Michigan
School:	Pankow Vocational Technical Center, L'Anse Creuse School District
Skill Standards Adopted:	Metalworking: National Institute for Metalworking Skills (NIMS)
Key Partners:	Macomb Community College
Students:	31 students in 10th-12th grade in school year 1997-1998
Contact:	Gerry Hope, Metalworking Instructor

INITIATING IMPLEMENTATION EFFORT

The Pankow Vocational Technical Center--a vocational center in L'Anse Creuse, Michigan--is the first school in the country with a metalworking program accredited (or "certified") by the National Institute for Metalworking Skills (NIMS). The standards effort was launched in summer 1995 as part of a statewide demonstration to introduce metalworking standards. The Michigan JOBS Commission and the Michigan Department of Education both invited Pankow, along with several other metalworking programs in the state, to participate in an unfunded demonstration to implement the NIMS standards. The school received some school-to-work funding to help implement the changes.

The Pankow metalworking instructor energetically responded to the state's invitation to participate in the demonstration, viewing the standards as an attractive mechanism for addressing local employers' disenchantment with the skill and motivation levels of many of the students completing his program. The instructor hoped the standards could raise the expectations of both students and employers.

The decision of NIMS to accredit Pankow's metalworking program in June 1997, before any other program in the country, reflected the instructor's success in strengthening several features of his program. In less than two years, he (1) modified his curriculum and articulated it with that of a local community college, (2) identified and engaged several new employer partners with a stake in the skill standards implementation effort, and (3) recruited students who were interested in and capable of meeting the standards.

CHANGING CURRICULUM AND STUDENT ASSESSMENT

The instructor sought to strengthen those features of the curriculum and assessment that would both fill gaps related to the skill standards and address local employers' concerns about the weak skills of many program graduates. To implement the standards, the instructor sought to (1) link his program with a local associate's degree college program, (2) strengthen the program's technical and

applied math curricula, and (3) resist pressure to broaden the curriculum to cover unrelated skills and career areas.

Linking Program to Community College. The instructor succeeded in articulating Pankow's metalworking program with two manufacturing programs at Macomb Community College, allowing Pankow students to earn college credit during high school. The articulation of the high school and college programs advanced the skill standards initiative in three ways. First, by creating opportunities for participants to earn 13 college credits (7 in metalworking and 6 in math) during high school, he attracted more motivated students and, hence, enhanced employers' perceptions of his program. Second, the college credits served as an incentive to motivate students to meet the standards. To earn the credits, students had to pass at least some of the NIMS Level I certificate exams, which include both written and performance-based tests. Consequently, the students who wanted to secure the college credits had to work hard to acquire specific competencies. Third, as part of the articulation agreement, Macomb introduced courses that would permit students to acquire more advanced (Levels II and III) NIMS certificates. By enhancing and linking the two programs, Macomb and Pankow staff enhanced the demand for both the lower- and higher-level certificates.

Strengthening Both Technical and Applied Math Curriculum. To articulate the program with Macomb and cover all of the skills in the NIMS standards, the instructor had to make several significant changes in the curriculum. The most dramatic change was using one of the hours normally devoted to machine shop for applied math instruction at Pankow. Historically, Pankow students had received all of their academic instruction in their home high school and came to Pankow only for their vocational courses. However, both the Pankow and Macomb instructors agreed that Pankow students would need stronger math skills to be successful in the industry. The addition of the math course also reinforced employers' positive impression of students' analytic skills.

The instructor enhanced selected portions of the technical curriculum that were related to the skill standards. These included the material relating to quality control (crucial for passing NIMS's demanding performance-based assessments), process planning, safety, and equipment maintenance. The instructor developed several projects designed to prepare students for the NIMS performance-based and written tests.

Limiting Breadth of Program. One potential downside of the new curriculum's emphasis on challenging math and technical competencies is that less time is available for students to explore topics not directly related to the skill standards. While Michigan is currently encouraging vocational programs to give students exposure to a broad range of careers, Pankow has difficulty reconciling this objective with the goal of helping metalworking students earn a national metalworking skill certificate. Since most students participate in Pankow's metalworking program for two years or less, there is barely enough time to prepare students for all of the Level 1 assessments, including the six written and eight performance-based tests. Consequently, the metalworking instructor has chosen not to rotate students through other Pankow vocational programs that are potentially relevant to students interested in manufacturing or engineering careers.

INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

During the early implementation phase, the instructor faced the difficult challenge of convincing employers to support the program before many changes were implemented. The instructor managed to mobilize support among a core group of employer sponsors by (1) targeting employers that appeared to place a high value on the technical and analytic skills emphasized in his new curriculum, and (2) giving employer partners a greater stake in his program's success.

Targeting the Right Employers. The metalworking instructor realized that, to successfully adopt the skill standards, he would need to forge much closer relationships with specific employer partners. His goal was to recruit employer partners that could provide substantial support to his program in the form of grants or donated equipment, high-quality internships for students, good jobs for graduates, and assistance in promoting the program to other employers.

The instructor carefully selected employers to serve on his advisory committee. While the school previously had a general employer advisory committee, the metalworking program did not have its own committee. The instructor identified firms that appeared to place a value on the technical and problem-solving skills emphasized in the skill standards and in his new curriculum. He avoided firms that were interested in using students only to perform unskilled tasks. After identifying promising candidates, the instructor contacted employer managers and emphasized the positive changes he was making in the program: the increased emphasis on math in the curriculum, the new applicant-screening procedures, and the rigorous NIMS assessments students had to pass to secure college credits and a skill certificate.

Giving Employer Partners a Stake in the Program. The instructor worked closely with one of the most active employer partners to develop a way to engage and reward firms making contributions to the program. They developed a "MetalWorks Club," in which local employers making financial contributions to the program would receive specific membership benefits in return. The most important benefit the club offered was a first shot at interviewing graduating students. The Metalworks Club ultimately created several forms of membership, each of which required a different level of financial contribution and offered different benefits (including various levels of priority in interviewing graduates, the use of the school district's facilities, and discounts on classes offered by the district and Macomb Community College). The club members provided a substantial amount of financial support to the program. The club raised $92,000 during its first year, allowing the instructor to replace much of the program's equipment and tooling, including several old machines that could not produce parts with the high level of precision required by performance-based NIMS assessments.

ATTRACTING PARTICIPANTS AND HELPING THEM ENTER THE INDUSTRY

To further enhance student outcomes and employers' perceptions of the program, the instructor (1) expanded student outreach, (2) introduced new screening criteria for admission to the program,

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(3) used the college credits and attractive internships to motivate students to make progress toward meeting the standards, and (4) helped place students in relevant jobs and postsecondary programs.

Expanding Student Outreach. To upgrade the skills and level of interest of students, the instructor developed several new recruitment strategies. First, he sent a brochure describing the new metalworking program to all parents in the district. The letter indicated that students participating in the metalworking program could earn credits at Macomb Community College and a metalworking skill certificate. Second, he invited parents to visit the program to see the facilities and learn more about the curriculum. Third, the instructor contacted guidance staff in students' home schools and described how the program was being improved. Together, these strategies increased both the number of students applying to the program and the fraction of applicants who are college bound.

Introducing Screening Criteria for Admission to the Program. The expansion in the applicant pool allowed the instructor to introduce new screening criteria for program applicants. All applicants were required to take an interest inventory and mechanical aptitude test. While the results of this test were not given any weight in the screening process, many applicants who did not want to complete the test screened themselves out of the program. In addition, the instructor used students' transcripts to screen out students with very weak math skills and those with poor attendance--groups that had previously had difficulty in technically demanding precision machining jobs.

Using College Credits and Apprenticeships to Motivate Students. The instructor used two incentives to motivate students to master key competencies and pass the NIMS assessments. First, he emphasized the potential value of the Macomb Community College credits that students could receive if they passed the NIMS tests. Second, he noted that only students passing one or more NIMS tests would receive a recommendation for the most attractive after-school internships. (Some of these internships are well-paying registered apprenticeships that have been developed with support from the state's new apprenticeship initiative.) The opportunity to earn college credits and obtain attractive internships, combined with the new student recruitment process, appears to have motivated participating students: all six seniors graduating from the program from the class of 1998 have earned several NIMS Level 1 credentials.[1]

Placing Participants in Relevant Jobs and Postsecondary Programs. The changes in Pankow's metalworking program, along with the new applicant-screening process, have also led to growth in the number of graduates entering high-paying manufacturing jobs and relevant postsecondary programs. Shortly after they graduated, all of the seniors in the class of 1998 obtained a job in the precision machining industry (all but one of these positions is a registered apprenticeship) and, at the same time, were enrolled in Macomb's part-time manufacturing associate degree program. By contrast, only about five of the nine graduates in the class of 1996 obtained jobs in the industry (none of which were registered apprenticeships), and only about two of the students in that class entered a college program related to manufacturing.

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[1]Each of the graduating students has been awarded credentials in at least six of the eight Level 1 skill areas. Two of the graduates have earned all eight credentials and thus have earned a Level 1 certificate.

MILWAUKEE, OREGON, PROFILE
STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

Location:	Milwaukee, Clackamus County, Oregon
School:	Owen Sabin Skill Center
Skill Standards Adopted:	Printing: PrintED/Printing Industries of America (PIA)
	Metalworking: National Institute for Metalworking Skills (NIMS)
Students:	90 printing students in 10th-12th grade in school year 1997-1998
	95 metalworking students in 10th-12th grade in school year 1997-1998
Contacts:	Ron Dexter, Director
	John Makin and Hal Jensen, Printing Instructors
	Joe Shepherd, Metalworking Instructor

INITIATING IMPLEMENTATION EFFORT

Sabin's implementation of national skill standards reflects the school's commitment to develop and adapt new vocational curricula. As the only regional vocational center in Oregon, the Owen Sabin Skill Center has functioned as the state's laboratory for vocational education. The Oregon legislature has repeatedly included specific line items in the state budget to support Sabin programs, reinforcing Sabin's commitment to come up with and disseminate new ideas.

Sabin embraced national skill standards well ahead of other schools in the region. In 1993, Sabin was one of the first schools on the West Coast to implement the PrintED standards, only two years after Printing Industries of America (PIA) began to promote those standards on a national basis.[1] If Sabin's manufacturing program succeeds in implementing the metalworking standards during school year 1998-1999 as planned, the program will probably be the first on the West Coast to secure accreditation from the National Institute of Metalworking Skills (NIMS).

Sabin's approach to implementing skill standards also reflects an interest in sharing lessons with other schools. With support from regional industry associations, Sabin has begun to disseminate instructional materials based on the new standards to other instructors in the state. However, the success of Sabin and other schools in the region in using national standards to upgrade their vocational programs could be constrained by several factors, including (1) the scarcity of resources available to upgrade curriculum and equipment, (2) the small number of local employers committed to skill standards, and (3) the limited interest of students in skill certificates.

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[1]PrintED standards were originally developed in 1986 by the Printing Industries Association of Georgia--an affiliate of PIA--at the request of the Georgia Department of Education. In 1991, PIA launched a national promotional effort for PrintED. Prior to 1993, nearly all schools implementing the standards were in Oklahoma.

CHANGING CURRICULUM AND STUDENT ASSESSMENT

Securing accreditation has been time-consuming for both the printing and metalworking instructors. Before the PrintED site reviews in 1993, the two printing instructors had to assemble notebooks documenting their curriculum and features of their program. Although a planning grant covered a portion of this work, the instructors had to devote a great deal of their own time to ensuring that the documentation was complete. (When the instructors applied to PrintED for re-accreditation in school year 1997-1998, they again had to work many hours after school to assemble the required documentation.) While the metalworking program has not yet been accredited by NIMS, the metalworking instructor has already spent a great deal of his own time trying to establish which skills are covered in the NIMS tests and developing a curriculum that can prepare students for these assessments.

Although preparing for the printing and metalworking accreditation reviews was time-consuming, the instructors ultimately determined that they needed to make only modest changes in their curriculum in order to implement the standards. Neither the PrintED printing standards nor the NIMS metalworking standards required instructors to drastically revise their lesson plans. Instead, the instructors had to document their existing curriculum carefully and develop some new assignments to fill specific gaps.

In addition, the most significant changes in the curriculum have affected only a small number of the students in the class, since most students are not interested in earning certificates. Both the printing and metalworking classes attract students with diverse interests, and only a fraction have clear plans to enter jobs or programs directly related to the skill standards.[2] The instructors have developed special assignments for students interested in preparing for the certificates, but they could not organize the entire curriculum around the specific learning needs of these students.

The range of changes in the curriculum has also been limited by the amount and kind of equipment the school received from local employer partners. When the school adopted the printing standards six years ago, it did not secure as much financial support and donated equipment from employers as some school staff had originally expected. (State funding has allowed the school to purchase several new computers, however, allowing the printing program to increase the amount of time students spend on prepress design tasks.) Local employers donated a substantial amount of equipment to the metalworking program, but some of this equipment (such as the new mold casting machines) is not directly relevant to the skill standards curriculum.

INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

Regional trade associations have played an important role in both initiating and providing support to the skill standards initiatives at Sabin. Pacific Printing and Imaging Association (PPIA)--PIA's affiliate in the Northwest--helped convince local employers and Sabin that the standards were

[2]See last section, "Attracting Participants and Helping Them Enter the Industry."

a useful device for upgrading local printing vocational and training programs. Similarly, both the Oregon Precision Metal Fabricators' Association (OPMFA) and the Oregon Metals Industry Council (OMIC) have stimulated local interest in the NIMS standards. For example, OPMFA hosted early presentations by NIMS staff during which Sabin instructors and several local employers first learned about the standards.

After the printing and metalworking instructors began to adopt the standards, the regional associations provided several kinds of assistance:

- ***Grants for Materials.*** OMIC purchased some hand tools for Sabin's metalworking program.
- ***Assistance with Accreditation Process.*** PPIA staff helped the printing instructors secure accreditation from PrintED by suggesting some minor changes in the curriculum and clarifying the PrintED requirements for equipment and documenting key elements of the program.
- ***Help Recruiting Individual Employers.*** OPMFA staff helped recruit some local employers who ultimately supported the metalworking program by providing equipment, student internships or projects, or assistance in identifying other employer partners.
- ***Help Disseminating Instructional Materials.*** Both OMIC and PPIA have supported Sabin's efforts to disseminate instructional materials to other schools in the region that are interested in implementing printing or metalworking standards.

While the regional associations have been helpful in supporting Sabin's efforts, this assistance has not yet translated into widespread employer support for the standards and skill certificates. So far, only a handful of employers have actively supported Sabin's programs, and many employers are still unfamiliar with the standards.

ATTRACTING PARTICIPANTS AND HELPING THEM ENTER THE INDUSTRY

The printing and metalworking programs at Sabin, like many other vocational programs, attract students with diverse interests and skills. Some students enroll in the class for reasons unrelated to their career goals (for example, to work on a hobby or to produce products that they can sell). Less than half of the graduates enter jobs or postsecondary programs related to their vocational class. According to some school staff, the large number of students with vague or unrelated interests is partially due to the weak career development programs in many of the high schools sending students to Sabin.

Only a small fraction of the printing and metalworking students view the standards and skill certificates as relevant to their lives. In the printing class, the fraction of seniors earning a certificate has fluctuated between one-eighth and one-fourth in recent years. While the metalworking instructor hopes that the NIMS certificate will ultimately appeal to many of his students, he has so far been able to interest only about one-tenth of his students in a NIMS certificate. Most of the printing and metalworking students earning skill certificates are those planning to enter a full-time job in the industry shortly after graduation.

The metalworking instructor hopes to encourage more students to earn skill certificates by articulating his program with that of a local community college. As a result of his efforts, the administrators at Clackamus Community College (CCC) are considering granting college credit to Sabin students who have earned a Level 1 NIMS certificate and who enroll in a proposed CCC two-year program designed to prepare students for the more advanced (Level 2 and 3) NIMS certificates. By offering students an opportunity to earn college credit during their junior and senior years of high school, the metalworking instructor hopes to convince more college-bound students to take the NIMS standards and skill certificates seriously.

ROYAL OAK, MICHIGAN, PROFILE
STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

Location:	Royal Oak, Oakland County, Michigan
School:	Oakland Technical Center, Royal Oak District, Oakland County Intermediate School District
Skill Standards Adopted:	Printing: Printing Industries of America (PIA)
Students:	60 students in 10th-12th grade in school year 1997-1998
Contact:	Michael Stir ett, Printing Instructor

INITIATING IMPLEMENTATION EFFORT

Two main factors led Oakland Technical Center to adopt printing skill standards in school year 1996-1997.[1] First, the countywide intermediate school district that funds vocational programs in Oakland County viewed national skill standards as a useful vehicle for updating vocational curricula, and it encouraged the four vocational centers in the county to begin to examine and adopt relevant national skill standards. Second, the printing instructor believed that the implementation of skill standards could enhance interest in and support for his program. Because of the instructor's enthusiasm, Oakland's program implemented the printing standards well ahead of the three other programs in the county. In spring 1998, his program was accredited by PrintED, the national accrediting arm of Printing Industries of America (PIA).

A key challenge the printing instructor faced was tight resources at the school. The portion of the local property tax supporting the school had not been adjusted since the late 1960s. Moreover, the state had recently required all schools to adopt the automotive repair standards, so the school had to devote a disproportionate share of its equipment budget to upgrading the automotive equipment. This left few resources available for other programs. Other challenges the instructor faced were (1) modifying the curriculum, (2) engaging employer partners, and (3) attracting students to his program and motivating them to earn the new skill certificates.

CHANGING CURRICULUM AND STUDENT ASSESSMENT

The instructor saw implementation of skill standards as a way to ensure that his program remained one of the strongest printing programs in the region. Before the PrintED accreditation process was initiated, Oakland's printing program already had been recognized as a strong program by several professional and industry associations. For example, the program had recently received a national award from the Graphic Arts Technical Foundation. Even though his curriculum was fairly strong, the instructor believed that the standards initiative would allow him to make useful improvements and purchase valuable equipment for his program. Some of the equipment he hoped

[1]Subsequently, in school year 1997-1998, the school adopted the metalworking and automotive repair standards.

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to obtain (such as new computers) related to the skill standards, while other proposed equipment acquisitions (such as new flexography systems) did not.

As part of the effort to secure the PrintED national standards accreditation, the printing instructor expanded the amount of class time that focused on three issues relating to the national printing standards:

1. ***Basic Math.*** The instructor expanded the amount of math in the curriculum from about 1.5 class periods to 4 class periods. Most of the math focuses on fairly basic measurement issues (such as converting inches to centimeters, converting decimals to fractions, and multiplying fractions).

2. ***Selected Technical Skills.*** The instructor covered more material on technical skills such as those relating to bindery, safety instruction, and miscellaneous desktop publishing and offset printing tasks.

3. ***Career Exposure and Job Search.*** The instructor slightly expanded the unit on the kinds of jobs available in the industry.

Although the instructor welcomed these changes, he had hoped to make additional enhancements to his program. He was unable to expand the scope of his program or upgrade any of the equipment. In addition, several of the changes in technical instruction pertained to only a subset of his students, since most were not interested in earning a skill certificate.

The instructor faced three specific hurdles in making the changes to curriculum and assessment:

1. ***Planning Time and Equipment Resource Constraints.*** The school was unable to increase the instructor's planning time when he was modifying his curriculum and preparing for the PrintED reviewers. Even though the changes to the curriculum were ultimately modest, the PrintED accreditation process was time-consuming: the instructor had to spend many weeks documenting his curriculum and assignments and other features of his program. In addition, no funding was available to purchase new equipment, even though the program had not purchased any new machines in the past several years. As a result, he was unable to expand into flexography and had to make do with a diverse mix of computers, including some fairly old ones that could not run the new prepress software packages.

2. ***Unclear or Inconsistent Career Interests of Students.*** Implementing the full PrintED curriculum was made more difficult because only a limited number of students had a clear interest in pursuing a career in the printing industry. Most students either had

vague career goals or interests that were not related to the careers for which the skill standards were designed.[2]

3. ***Competing Learning and Assessment Goals.*** In addition to encouraging programs to adopt the national standards, the intermediate school district asked the school to make two other changes: (1) rotate students across related vocational programs to give them exposure to a broader range of careers, and (2) emphasize applied academics in both the curriculum and student assessment. In theory, these objectives were compatible with the national skill standards; in practice, however, they were difficult to reconcile. The rotations are expected to take first-year printing students out of the instructor's classroom for several weeks, most likely reducing the number of students who will be able to master all of the PrintED certification requirements. To satisfy the district's new applied academics framework, the instructor had to begin to revise his curriculum and assessment just before the PrintED accreditation site review. The need to separately keep track of a large number of new academic competencies will make it harder for the instructor to monitor students' progress in mastering the technical skills emphasized in the PrintED standards.[3]

INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

For many years, the printing instructor has involved local printing employers in efforts to improve his program. An employer advisory committee meets twice a year and provides suggestions about equipment acquisitions and skills that should be emphasized in the curriculum. Some of these employers have made useful suggestions, but the committee did not play a significant role in shaping the way in which the printing program adopted national skill standards.

Two factors seem to explain the limited role of the advisory committee. First, the number of committee members who regularly attend meetings has declined recently. Some school staff suggest that this decline is the unintended result of the intermediate school district's decision to increase the frequency of advisory committee meetings (from once a year to twice a year), which may have discouraged committee members from actively participating. Second, school staff did not actively seek much input from committee members on the curriculum changes related to the national standards, largely because the changes were fairly minor.

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[2]This reflects the informal process by which students selected vocational classes and the limited career guidance offered by high school guidance staff. (See discussion in section, "Attracting Participants and Helping Them Enter the Industry.")

[3]The instructor would like to try to reduce the amount of time involved in recording students' competencies by using an electronic bar code reader. Whenever a student performs a task, the instructor could scan codes indicating the task completed, the student, and the level of performance. Both the technical and academic competencies associated with the task could be automatically recorded.

ATTRACTING PARTICIPANTS AND HELPING THEM ENTER THE INDUSTRY

Students entering the printing program have diverse interests and abilities, reflecting the informal process by which students select vocational classes. In the past, at least half of the 28 home high schools sending students to Oakland Technical Center had feeder graphics programs that exposed many 9th and 10th graders to graphics tasks and careers. As a result, most juniors and seniors choosing to enter Oakland's printing program already had a sense of the graphics field. Only one of the feeder programs remains now, so most incoming students have not had a chance to learn about graphics firsthand. Guidance staff at the home school have limited opportunities to help students make informed choices about vocational classes. Consequently, many of the students in Oakland's printing program have either vague career goals or interests unrelated to the printing positions for which both the program and the skill standards were designed.

To recruit more students with focused, relevant career interests, the instructor is seeking to improve his relationship with guidance staff and promote the PrintED accreditation. Recently, a three- to six-week summer program was initiated that pays guidance staff from local feeder high schools to visit Oakland programs, informing them about the school's career technical programs and skill standards. School staff expect that this initiative will help Oakland recruit students with relevant interests and skills.

The printing students with the most relevant, focused interests tend to be the ones who enter relevant postsecondary programs. All five students who earned a PrintED skill certificate enrolled in graphic arts or printing management college programs after graduating from Oakland. Three of these students entered a program at Ferris State University that granted them some college credit because they had successfully completed a PrintED-accredited high school program. Although the instructor is unsure whether any of these students were particularly motivated during high school by the opportunity to earn college credits, he plans to use this incentive in the future to attract and motivate more students.

- Revise the curriculum and format it to correspond to items on the PrintED skill standards checklist
- Change assessment methods, including use of skill standards checklists
- Acquire new equipment, particularly computers

Changing Curriculum. To update the printing program and ensure that the program covered all of the skills in the PrintED standards, the instructor had to make several changes in the curriculum. The new curriculum covers a broader range of prepress and finishing topics and makes more use of computers.

Although the new instructor might have made many of the changes even without the standards, the state's push for the standards enhanced resources and accelerated the timetable. A statewide workshop on the standards and state funding for schools securing PrintED accreditation helped the instructor enhance his program. He had already planned to revise the curriculum to cover much of the new material, but he was glad to have the structure that the certification process imposed. He feels that PrintED is in touch with the industry, so it is not surprising that the standards fit well with what he would have wanted to teach anyway.

The instructor continues to accommodate students' individual interests, deviating from the written curriculum. For instance, the instructor teaches interested students some skills not included in the curriculum, such as airbrushing and screen printing, because they are enjoyable and can engage some students. While this approach may not reinforce the standards, it attracts students to the program and encourages them to apply themselves in class.

New Assessment Methods. The instructor introduced PrintED checklists, which he completes for each student in all four areas in which the program is certified. Most testing in the printing program is performance-based. The program is portfolio-based because of the art involved. The instructor said he would have designed it that way even without the skill standards (although it was not designed that way before he took over). He said that he would probably use a competency checklist similar to the PrintED list even if the program had not adopted the standards.

New Printing Equipment. The instructor upgraded some equipment in the shop. The growing importance of computers in the printing industry led the instructor to focus on that area for improvement. Funds provided by the state as an incentive for adopting the standards were combined with some of the school's Perkins money to allow the instructor to revamp the program's computer room, replacing old PCs with new Macintoshes. The new equipment helped ensure PrintED certification, particularly for the Electronic Imaging portion. Without state funds it would have taken much longer for the school to be able to purchase all of the new equipment.

Some of the more traditional printing equipment is still outdated, however. Local employers complained that the press equipment is old and in bad shape, and the principal admitted that in purchasing the new computer equipment the program had somewhat neglected the traditional printing machines.

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TRENTON, NEW JERSEY, PROFILE
STUDY OF LOCAL IMPLEMENTATION OF SKILL STANDARDS

Location:	Mercer County, New Jersey
School:	Sypek Center, Mercer County Area Vocational-Technical Schools
Skill Standards Adopted:	Printing: PrintED[1]
Key Partner:	New Jersey Department of Education
Students:	About 12 students in 12th grade in school year 1997-1998
Contact:	Tom Agans, Printing Instructor

INITIATING IMPLEMENTATION EFFORT

The New Jersey Department of Education mandated that all printing programs in the state adopt the national printing skill standards in school year 1996-1997. The printing instructor at the Mercer County Area Vocational-Technical Schools (MCAVT) viewed this as a welcome opportunity to upgrade his program. He was fairly new to the school and realized that the printing program needed to be revised. He appreciated the state's skill standards initiative because it gave him a timeline, and the standards provided a structure for his new curriculum. The state also offered additional funding to schools that became accredited by PrintED, the national association that developed the printing standards.

Although adoption of the skill standards induced some changes, work remains to be done. The curriculum and assessment methods in MCAVT's printing programs have been modified as a result of the skill standards implementation. However, few local employers involved in the program are both aware of and impressed by the standards. It is unclear whether the enhanced curriculum and credentials have improved student outcomes, although there are positive signs that more program graduates are entering relevant postsecondary programs and jobs.

CHANGING CURRICULUM AND STUDENT ASSESSMENT

The instructor updated the school's printing program to meet the standards and attract students to the program, which had become undersubscribed. He sought to strengthen those features of the curriculum and assessment that would fill gaps related to the skill standards. To implement the standards, the instructor perceived a need to:

[1]PrintED certified the school in four of nine printing areas (Introduction, Basic Offset Press, Finishing/Binding, and Electronic Imaging) in August 1996.

INVOLVING LOCAL EMPLOYERS AND INDUSTRY GROUPS

While local employers provide some support for the printing program at MCAVT, most local firms remain unaware of the skill standards. The instructor faced two main challenges in his attempts to mobilize support among employer sponsors:

- Limited employer involvement in reviewing program curriculum
- Students' workplace experiences not affected by the skill standards

Low Employer Involvement in Program. While employers are involved in some features of the printing program at MCAVT, few actively participate in curriculum issues. The program's local advisory committee meets once or twice a year, and typically only four or five of the eight members are present at a meeting. The instructor tries to schedule the advisory committee meetings to coincide with the school's Vocational Industrial Clubs of America competitions in order to increase employer participation and to allow the employers to meet the students. Members of the advisory committee are also a good source of equipment and jobs for students. This advisory committee officially had to review and approve the new curriculum, but the instructor explained that it was a fairly loose process. He had informal conversations with committee members about his curriculum but does not think that any of them reviewed it carefully. Only one or two of the advisory committee members had heard of PrintED when the instructor told them he was adopting the standards. Few seemed interested in finding out more about the skill standards.

Workplace Experiences Unaffected by Standards. Many of the employers providing workplace experiences for MCAVT printing students remain unaware of the skill standards. The implementation of skill standards has not appreciably affected the work-based activities of students at MCAVT in any way. In part, the lack of change reflects the fact that students' work is driven primarily by employers' production needs. In addition, the standardized procedures and staff used to place students in workplace experiences may have impeded change. MCAVT, like many schools, uses co-op supervisors rather than instructors to coordinate students' co-op jobs. These staff deal with students from many vocational programs and do not have time to customize either job descriptions or assessment procedures based on new standards.

ATTRACTING PARTICIPANTS AND HELPING THEM ENTER THE INDUSTRY

It is unclear how directly the standards affected the interest and outcomes of students in MCAVT's printing program. Still, the instructor's new curriculum appears to have engaged students, and it had three specific positive effects:

- Increasing the number and mix of students in the program

- Awarding PrintED skill certificates to almost all students in the program
- Placing program graduates in related jobs or postsecondary programs

Increasing Number and Mix of Students. Before the new instructor took over the printing program, enrollments had fallen to only a few students. To interest more students, the instructor includes enjoyable projects (such as making cassette tape covers). He said students like the program because they can be creative and work on projects they enjoy. The instructor did not begin any new formal outreach efforts to recruit students; however, the program's reputation improved simply by word of mouth. Students recruit other students to the program, and the impressive materials created in the printing shop are also a draw.

The instructor said that, although the caliber of students in the printing program is still not as high as he would like, it is getting better. The grade point averages and SAT scores of his students are improving, and a growing fraction of students plan to attend a two- or four-year college. In addition, more of the students entering his class now know what they want to do, although some are still not interested in graphic arts.

Awarding Skill Certificates to Most Students. Almost all students in the printing program at MCAVT earned PrintED certification in at least one area. All of the 12 students graduating in 1998 received PrintEd skill certificates, and 14 of the 15 students graduating in 1997 received certificates. Most of them completed the introduction and one or two other areas.

Placing Graduates in Related Jobs or Postsecondary Programs. According to school staff, a substantial percentage of graduates from MCAVT's printing program continued in the field after completing high school. About half of the program graduates in both 1997 and 1998 found full-time jobs related to printing or graphic arts. In 1998, 25 percent of graduates entered related postsecondary programs (although none did in 1997). The instructor was uncertain whether students benefited from certificates, however, since few employers or postsecondary schools were familiar with these credentials.

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